Comparative study on export policies in Egypt, Morocco, Tunisia and South Korea

African Development Bank
Banque africaine de développement

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Foreword

A robust structural transformation is critical to shape a country's ability to generate a faster and more inclusive growth that is required to tackle social challenges, such as unemployment and poverty. Structural transformation driven by export is highly relevant for Egypt, Morocco and Tunisia; countries where several trade strategies and export promotion policies have been undertaken but are yet to take full advantage of their export led-growth strategies. Progress has been insufficient to secure the types of benefits experienced by other countries which have pursued higher value production for their economies.

Considering the social and political upheavals that dominated the region in 2011, the current context is particularly opportune to identify the gaps and obstacles encountered in the reforms initiated over the past decade and to address the constraints which hinder Egypt, Morocco and Tunisia from moving up the value chain—a move which could create more and better quality employment opportunities for the youth of the region.

This study considers how increasing productivity and moving up the value chain could enhance economic development in North Africa. Particular attention is paid to how development of export-led growth strategies requires a host of improvements to the institutions and services that support trade. Egypt, Morocco and Tunisia have to create an environment where a greater diversity of productive activities can thrive, in particular, activities that are more complex than the current export basket.

The study has been prepared with in-depth dialogues with the Governments of Egypt, Morocco and Tunisia, through in-country

missions and consultation seminars. This effort made the study more relevant to the situation in the countries and makes the policy recommendations concrete.

The report is a milestone in guiding the Bank Group interventions in these countries as well as providing an intellectual basis for policy dialogues between the Bank and its stakeholders in the areas of trade and industrial policies.

We believe that the report will provide policy makers with insightful information on strategic industries to promote in order to move up the value chain. We hope that it will create a good basis for dialogue in this critical juncture to ensure a healthy economic recovery from the social and political unrest of 2011.

Zondo Sakala
Vice President
Country and Regional Programs and Policy
African Development Bank Group

Preface

During the first decade of the Millennium, with annual growth rates averaging nearly 5 percent and good progress towards achieving the Millennium Development Goals, developments in North Africa seemed to cement the view that the economic gains were translated into improvements in the real and perceived wellbeing of people in the region. The social and political changes that started in Tunisia in the early days of 2011 and spread across the region, therefore, took many, if not most observers by surprise. However, many of the underlying issues and key drivers behind the calls for change had been emerging for some time-notably the very high levels of unemployment among youth, educated youth in particular; the entrenched and, in some cases, very high levels of poverty and within borders regional disparities; and the modest progress in areas related to voice, accountability and transparency.

What North African countries experienced in the lead-up to the social and political upheavals in early 2011, it could be argued, was the classical dual middle income country trap: insufficient political, social, and economic inclusion combined with a pattern and level of economic growth insufficient to absorb a growing and better training labor force. North Africa's decent growth performance has generally reflected high rates of investment rather than major gains in productivity. Experience from fast-growing emerging regions elsewhere in the world, South East Asian notably, suggests that diversification and economic transformation towards higher value-added production are essential ingredients in bringing about productivity gains and stronger and more sustained economic growth-dimensions that are likely to go a long way in addressing some of the key challenges related to inclusion and job creation in North Africa.

South Korea-a country with almost no natural resources yet posting a thirteen-fold increase in per capita GDP during the 1980-2010 period-is a particular instructive example in that it has achieved sharp increases in economic productivity and economic welfare through policies that an export-oriented strategy that enabled rapid access to technology and firms to capture scale economies.

This report explores the South Korean experience, with a view to extract the lessons that may be gained for North African policymakers, and provides a diagnosis of the conditions and constraints to growth prevailing in Egypt, Morocco and Tunisia along with preliminary, hands-on policy recommendations on how these countries could improve their exports in the strategic industries.

We hope policy makers, researchers, and representatives of the civil society and the private sector in North Africa will find this report useful and we would welcome any feedback you may have.

Jacob KOLSTER,
Regional Director, North Africa A - AfDB

Nono MATONDO-FUNDANI,
Regional Director, North Africa B - AfDB

Acknowledgements

This Comparative Study of Export Policies in Egypt, Morocco, Tunisia and South Korea was produced by a team of AfDB staff and external experts. Its content and the topic selected were discussed with the Governments of Egypt, Morocco and Tunisia.

Jieun Choi (Country Economist of the AfDB) conceptualized and task managed the study. Meanwhile, Yasser Ahmed (ORNA, AfDB) provided substantive contributions to the preparation of the study while Kaouther Abderrahim (ORNA, AfDB) provided intellectual inputs and coordination with Governments and other authors throughout the preparation of the Report. The report was prepared under the supervision of Jacob Kolster, Regional Director (ORNA, AfDB), who provided critical analytical advice and quality assurance.

Chapter I, Structural transformation in Egypt, Morocco and Tunisia: A comparison with China, South Korea and Thailand, was drafted by Prof. Ricardo Hausmann and Sebastien Bustos from Harvard Kennedy School. Chapter II, Country Specific Context - Review of existing policies and identification of constraints, was drafted by Jieun Choi and Kaouther Abderrahim of the AfDB. Chapter III, The Korean Experience and Policy Implications for North African Economies, was drafted by Prof. Jihong Kim from Korea Development Institute. While preparing each chapter, the authors visited the countries and interacted with the Governments, scholars, and civil society in order to make the findings of the study useful to each country.

The Report benefited from useful comments from peer reviewers: Bernard Hoekman (Director, International Trade Department,

World Bank), José Guilherme Reis (World Bank) and Thomas Farole (World Bank). Ahmed Galal (Managing Director, Economic Research Forum) and Hoda Selim (Economic Research Forum) also provided their intellectual inputs and concrete suggestions to improve the quality of report. The Report benefited from practical advice of Gil Seoung Kang (EDRE, AfDB) and Christian Lim (OSGE, AfDB) for scoping of the study. The Report also received analytical comments and editing from William Shaw.

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The Report has been prepared as a part of the on-going policy dialogues between the Bank and the countries in the areas of trade and industrial policies. During the consultation mission to Egypt, Morocco, and Tunisia, the team met the Government officials, private sector, and Civil Society of each country and received their feedback.

In Egypt, the mission visited Ministry of Finance (Ms. Amina Ghanem and Ms. Omneya Ramadan), Mr. Mohamed Ragui (Export Fund), GAFI, and the Industrial Zone in Giza. The team presented the initial findings of the study and received comments from various scholars from ERF, ECES, ENCC, American University of Cairo and other institution such as Social Fund for Development, African Exim Bank, and the private sector. Donors, including WB, OECD, UN, EU, and JICA, participated and shared their views.

In Tunisia, the mission visited Ministry of Industry (Mr. Ridha Klai and Mrs. Fatma Thabet Chiboub), Mrs. Saida Hachicha (Ministry of Tourism, Trade and Handcraft) and Mr. Abdellatif Hama, CEO of Export Promotion Center (CEPEX). The mission also visited Techno-Parks in Sousse (Mr. Hichem Turki) and Monastir (Mrs. Neila Gongi), and met private sector companies which are operating in the techno- Park (Yamaichi Electronics). The mission shared the finding of study during the meetings and received feedback from the different stakeholders.

In Morocco, the team visited Ministry of Foreign Trade (Minister, Mr. Abdellatif Mazouz), Ministry of Industry (Mr. Nabil Chaouki), Maroc Export (Mr. Larbi Bourabaa), ANPME (Mrs. Latifa Echihabi), ASMEX (Mr. Younes ZRIKEM) and CGEM (Mr. Mounir FERRAM). The team presented the initial finding of the study to Mrs. Malika Dhif (Ministry of Economic and Finance).

During the dissemination seminar, which was held in Tunis on the 24th of November, 2011, the delegations from Egypt, Morocco, and Tunisia participated and shared their views on the report. The Tunisian participants include: Mr. Raouf Sfar (Director General, Ministry of Finance), Mr. Mondher Ben Brahim (Director, Ministry of Finance), Mr. Lotfi Zguir (Director Ministry of Finance), Mr. Mohamed Jouneidi Abderrazak (Director, Minisry of Industry), Ms. Lamia Zribi

(Ministry of Planning and International Cooperation), Ms. Wahida Jeribi (Director, Central Bank), Mr. Mohamed Toujani (Director, Central Bank), Mr. Khaled ben Hamida (CEPEX) and Ms. Chelbia Cheffia (CEPEX). The Egyptian delegation included: Mr. Mohamed Helmy Nabaw (Ministry of Industry and Foreign Trade) and Ms. Dina Kafafy (Egyptian National Competitive Council), and Ambassador of Egypt. From Morocco, Mr. Ali Mehrez (Maroc Export), Ms. Kenza Benouiss (Ministry of Economic and Finance) and Mr. Mohamed ben Ayad (National Council of Foreign Trade) participated in the seminar. The Chief Economist and Vice President for Regional and Country Programs of the AfDB, together with the various departments of the Bank, the Bank's Egypt field office and Morocco field office, and the Ambassador of Korea also participated the seminar.

Table of Content

Abbreviations

BOT	Bilateral Investment Treaties
CAMPAS	Central Agency for Public Mobilization and Statistics
COMESA	Common Market for Eastern and Southern Africa
CU	CustomUnion
DOT	Direction of Trade
ECI	Economic Complexity Index
EFTA	European Free Trade Area
ERSAP	Economic Reform Structural Adjustment Program
EU	European Union
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
FTZ	Free Trade Zone
GAFTA	Greater Arab Free Trade Agreement
GDP	Gross Domestic Product
HHR	Hwang, Hausmann and Rodrik
ICT	Information and Communication Technologies
IMF	International Monetary Fund
IZ	Industrial Zones
ITC	International Trade Center
KDI	Korean Development Institute
MENA	Middle East and North Africa
MIDA	Moroccan Inverment Development Agency
NAFTA	North American Free Trade Agreement
OECD	Organisation for Economic Co-operation and Development
PTA	Preferential Trade Agreement
QIZ	Qualifying Industrial Zones
RCA	Revealed Comparative Advantages
SITC4	Standard International Trade Classification,
SME	Small and Medium-sized Enterprises

UNCTAD	United Nations Conference on Trade and Developmen
USA	United State of America
WDI	World Development Indicators
WEO	World Economic Outlook
WTI	World Trade Indicators
WTO	World Trade Organization

Structural transformation in Egypt, Morocco and Tunisia: A comparison with China, South Korea and Thailand

Ricardo Hausmann and Sebastián Bustos

1. Introduction

Countries seldom grow rich by producing more of the same. Development implies changes in what countries produce. Structural transformation is the process by which countries move into new economic activities. In turn, new economic activities are the ones that are able to achieve higher levels of productivity, pay higher wages and increase the level of prosperity of a country's population. Structural transformation is crucial for economic growth: countries that are able to upgrade their production and exports by moving into new and more complex economic activities tend to grow faster (Hausmann and Rodrik 2003, Hausmann, Hwang & Rodrik 2007).

During the past decade, Egypt, Morocco and Tunisia have experienced sustained growth (Figure 1). They were able to narrow the income gap with the United States. However, growth was not outstanding in the sense that the three countries did not improve their relative position in the world in terms of income per capita in the decade to 2009.

Figure 1 shows the dynamics of income per capita, income as a share of that of the United States and investment rates for Egypt,

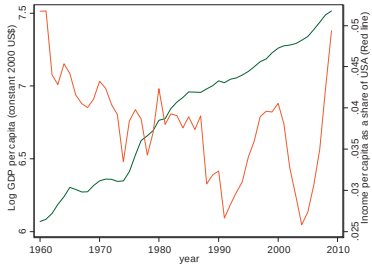
Morocco and Tunisia. In all three countries, the past decade has seen a recovery in income per capita relative to the US, but none has been able to supersede their historical maximums. Egypt is below its relative level of 1960 despite its oil discoveries. Morocco is below its 1980 level, even though it has shown a positive trend in the more recent period. Tunisia is also below its 1980 peak and has fluctuated without much of a trend in recent years. A similar story is told by the evolution of the investment rate: it has fluctuated around moderate levels, indicating that investors are not finding too many unexploited opportunities. Morocco, however, does show an improving trend. Since the beginning of the nineties, the average investment ratio has been largely above the world average in Morocco and Tunisia, and slightly below the world average in Egypt. But the past 5 years have seen an improving trend in all three countries.

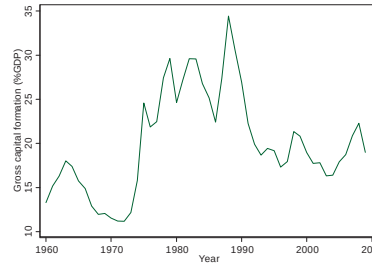
Table 1 uses a fixed panel of 139 countries to calculate the rankings of income per capita for the 1984-2009 period. In fact, as Table 1 shows, neither Egypt nor Tunisia was able to improve their relative ranking in the world in the past 25 years. Morocco did improve, but its progress happened essentially in the 1984-1994 decade. While the three North African countries have not improved their income ranking, China, Korea and Thailand experienced outstanding improvements by their ability to develop and move to new industries.

This paper explores whether the growth of Egypt, Tunisia and Morocco, and the outstanding performance of China, Korea and Thailand are related to their different patterns of structural transformation. While the productive structure of the North African countries has changed at a slow pace over the last decades, the three Asian countries experienced much more pronounced structural transformation, moving into new economic activities to sustain their stellar growth.

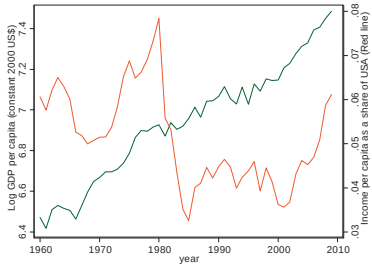
Figure 1 - GDP per capita (logs) and investment share to GDP

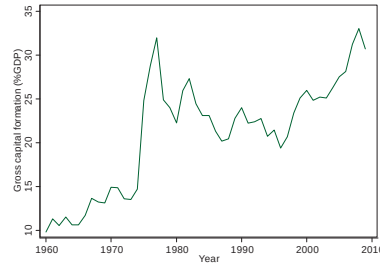
A. Egypt



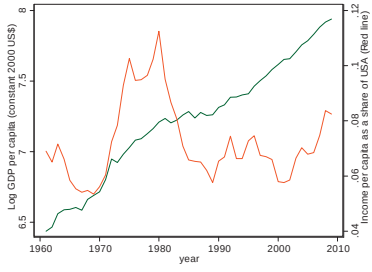


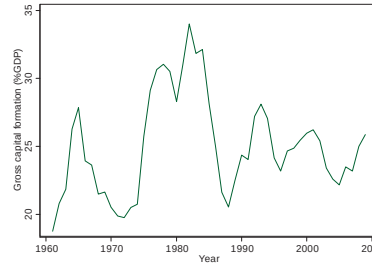
B. Morocco





C. Tunisia





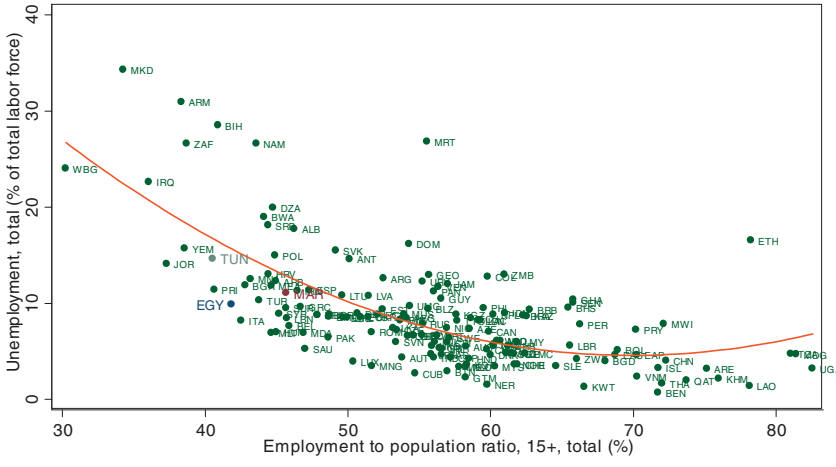
Source: Authors' calculations using WDI data.

Table 1 – Income per capita rankings

Country name	1984	1989	1994	1999	2004	2009
Egypt, Arab Rep.	82	59	91	78	92	90
Morocco	97	85	81	82	83	83
Tunisia	68	71	68	66	68	71
China	118	113	105	93	86	77
Korea, Rep.	48	38	34	35	33	33
Thailand	83	73	64	71	72	72
N countries in sample	139	139	139	139	139	139

Source: Authors' calculations using WDI indicators. Income rankings use GDP/PC in current dollars.

Figure 2 – Unemployment and Employment Average 2000-2009



Source: Authors' calculations using WDI data.

Egypt, Morocco and Tunisia are among the countries with the lowest employment rates as a share of the working age population. This fact implies that GDP per capita is affected by the low level of workers per capita. To illustrate this point, think of the following

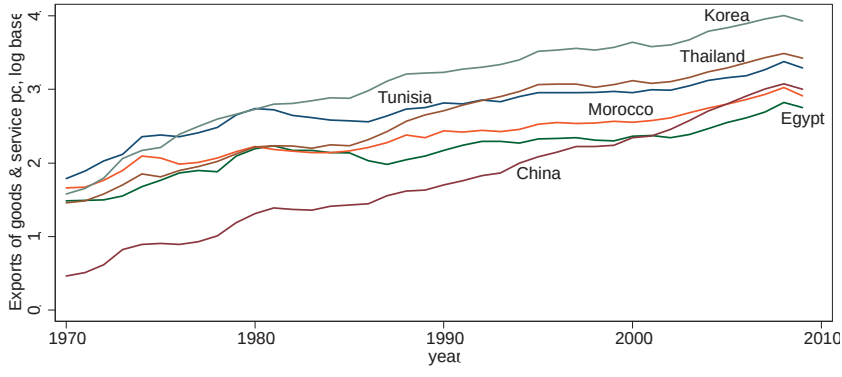
simple exercise. Assume that productivity per worker was constant and that these three countries were able to achieve the average employment ratio of Latin America during the last decade. If this were possible, income per capita in Egypt, Morocco and Tunisia would be 39, 31, and 46 percent higher than its current level. One reason why it would not be possible is that those employed today are more skilled than those of working age that are currently not working. Expanding employment without reducing average productivity and wages would require structural transformation, so that the new more productive activities would allow the economy to include millions of lesser skilled workers without reducing the average productivity of the economy.

To assess the changes in the productive structure of countries we use data on the export of goods, as compiled by the United Nations COMTRADE. We use trade data following the Standard International Trade Classification, Revision 2 at the 4 digit level (SITC4) which allows us to explore the evolution of the export basket of countries since the early sixties. Unfortunately, there is no international comparable data on the exports of services. Although goods exports do not allow us to see the whole of the productive structure of a country, it does reveal the industries where the country has developed a level of productivity that is high enough to compete in international markets.

Much has been said about the export orientation of East Asian high-growth countries. Some have emphasized the role of growth in export revenues. We take a different view. As discussed in Hausmann, Hwang and Rodrik (2007), what a country exports matters more and is more fundamental than how much it exports. What a country exports will influence the volume and value of its exports, their profitability and hence the willingness to invest in the expansion of export capacity. It is the ability to move into more productive activities that causes economic growth, by affecting inter alia, but not only, the growth of exports. For this reason, we will dedicate much of this chapter to study the export structure of the countries since it reveals the sectors in which a country has comparative advantage. But before we do so, we review the evolution of export values.

In Figure 3, we present the dynamics of the exports of goods and services in per capita terms for the three North African countries and the three East Asian countries used as benchmarks. We include services, because it is often argued that East Asia may have a comparative advantage in the export of goods while North African countries, given their geography, location and history may have comparative advantage in services, such as tourism. Figure 3 clearly shows that although exports per capita in Egypt, Morocco and Tunisia are on a rising trend, they have risen more gradually than the Asian benchmarks. In the late 1970s, China was well below all three North African countries, but by the early 2000s it had overtaken Egypt and Morocco, even though, as a much larger country, it would have been expected to be less export oriented. Korea and Thailand started at similar export per capita levels as Egypt and Morocco in the 1970s and well below Tunisia. However, they amply overtook all three North African countries. Hence, the slower three North African countries exhibited less export dynamism than the three East Asian benchmarks, and this is not due to their larger reliance on services, because we have included these in Figure 3.

Figure 3 – Exports of goods and services per capita

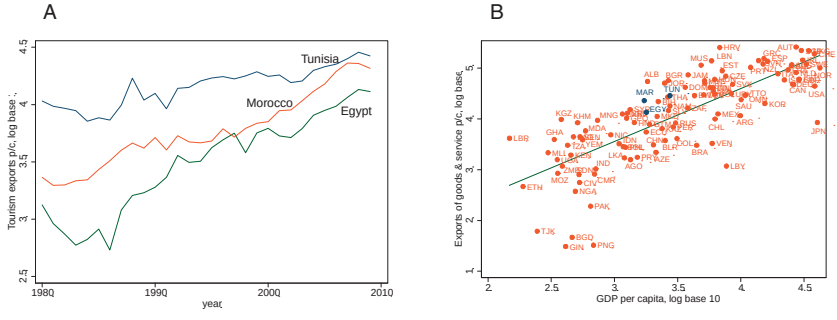


Source: WDI 2011

The tourism sector is important and has contributed to the growth of overall exports of goods and services per capita in all three North African countries. As Figure 4A shows, tourism receipts per capita

have been on a rising trend, especially in Morocco and Egypt. Moreover, Figure 4B shows that tourism receipts per capita are significantly above the levels that would be expected, given the income per capita of the three North African countries, indicating that the tourism sector is already quite large. [the label on Figure 4B says exports of goods and services, not tourism receipts] However, it is clear that, on its own, tourism will not be enough to generate the kind of dynamism that characterizes the three East Asian countries. One way to show this is to ask the following question. By how much would tourism exports per capita have to rise in order to close the current gap in per capita exports of goods and services with Thailand? The answer is 1381% for Egypt, 712% for Morocco and 184% for Tunisia. If the goal was to close the export gap with Korea, the equivalent numbers would be 54,330%, 30,848% and 17,705%, respectively. This clearly shows that, while a tourism strategy can make a contribution to export growth, it cannot be either the sole or the main source of export dynamism.

Figure 4 – Tourism exports



Source: Authors' calculations using WDI data.

We conclude that exports in Egypt, Morocco and Tunisia have lagged compared to the three East Asian countries, in spite of their large and dynamic tourism sectors. However, as we will argue, this is more a symptom than an ultimate cause of their slower GDP growth. The lag in exports and GDP growth reflects the much slower process of structural transformation. To see why this is so, we first need to understand the role of the composition of

production and exports in determining the levels and growth rates of these variables. We turn to this now.

2. What you export matters: Assessing export composition

The foundational models of trade theory suggest that the initial pattern of specialization has little to no effect on its future evolution, as it is merely a reflection of deeper underlying characteristics of the country, such as its factor endowments and technological differentials. In these models, the structure of the product portfolio of a country is of no importance and hence does not create sources of path dependence. Nevertheless, recent research has shown that the productive structure does matter, as it affects the pattern of development of new products, and therefore the dynamics of productivity and growth potential of countries.

A first attempt to show that productive specialization matters was done by Hausmann and Rodrik in 2003 and Hausmann, Hwang and Rodrik in 2007 (HHR). These papers show that while the so-called 'economic fundamentals' play a role, they do not pin down what a country will produce and export. To support this view, HHR develop a measure of export sophistication, calculating the average income per capita of the countries with an export basket similar to one's own. They show that countries with a more sophisticated export basket, controlling for their initial level of income, grow faster. This suggests that the composition of a country's production affects its future development possibilities.

Following HHR, we construct their measure of export sophistication. For each good traded in world markets, we generate an associated income/productivity level (which we call PRODY). We then construct the income/productivity level that corresponds to a country's export basket (which we call EXPY), by calculating the export-weighted average of the PRODY for that country. EXPY is our measure of the productivity or sophistication level associated with a country's specialization pattern (see the appendix for a description of the concepts and calculations).

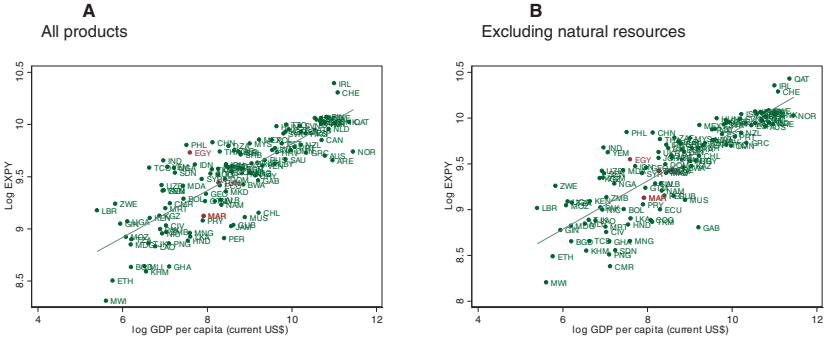
This metric differs from traditional measures of sophistication that attempt to measure R&D intensity or technological sophistication. EXPY is outcomes-based. It exploits the fact that richer countries exhibit higher levels of productivity and pay higher wages. A product exported by such a country can be competitive at these high wages and hence must exhibit high levels of productivity. Poor countries that can make those products will have lower wages and, if they can emulate the levels of productivity of the richer countries, will be able to be more profitable and hence expand. Seen in this context, it is not surprising that a high EXPY, after controlling for the level of GDP per capita, is robustly linked to subsequent economic growth (Hausmann, Hwang and Rodrik 2007).

Figure 5 shows that there is a strong positive relation between income per capita and export basket sophistication (EXPY). While EXPY is highly correlated with per-capita GDP, we show that there are interesting discrepancies. Some high-growth countries such as China and India have EXPY levels that are much higher than what would be predicted based on their income levels. China's EXPY, for example, makes us expect that it would continue to grow rapidly in the future since it is producing products that are highly sophisticated for its income level. [Perhaps a footnote would be useful here to discuss the possibility that China's high EXPY is the result of assembly operations, and if so, whether that impairs its usefulness as a predictor of growth] The same is true for Egypt, which is significantly above the trend line. On the other hand, the level of sophistication Tunisia is very much on the regression line, while that of Morocco is below what would be expected given its income level.

We explore the possibility that the high EXPY of Egypt is driven by the price of oil. Since many oil countries are very rich, oil gets assigned a high PRODY, even though the product may not be technologically sophisticated. Panel (b) in Figure 6 recalculates EXPY without including natural resources. It shows that Egypt, Morocco and Tunisia remain basically in the same position, indicating that our initial conclusion is sound: Egypt's export basket is more sophisticated than expected, given its income level, Tunisia

is in line with expectations but Morocco is below the regression line.

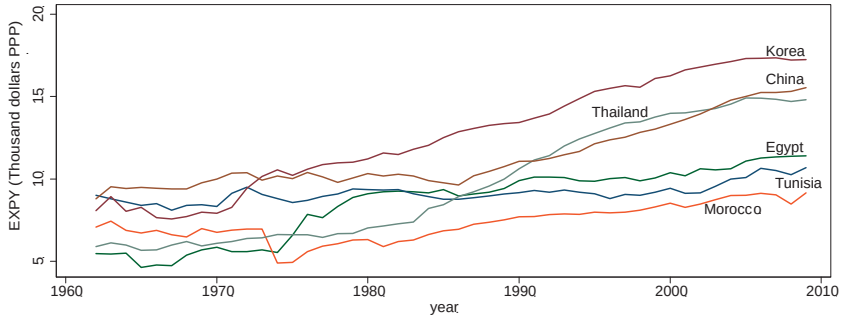
Figure 5
Export sophistication in 2008 and income per capita



Source: Authors' calculations using Feenstra et al., COMTRADE data and WDI

To analyze the evolution of export basket sophistication it is helpful to calculate EXPY with a fixed value of the PRODYs. This assures that movements in EXPY are not driven by changes in the income level of other countries that export a given good, but instead reflect the fact that the country in question has increased the share of more sophisticated products in its export basket. Figure 6 shows the evolution of EXPY for all six countries. It shows that all of them have been on an upward trend, but the three North African countries have significantly trailed behind the three East Asian countries. For example, while in 1965 Tunisia had a more sophisticated export package than Korea or Thailand, it was overtaken by Korea in the 1970s and by Thailand in the 1980s. Morocco was more sophisticated than Thailand in 1965 but also lost its superiority. This suggests that while structural transformation was at play in the two regions, it happened much more quickly in East Asia.

Figure 6
Export sophistication in time (using PRODY of year 2000)



Source: Authors' calculations based on Hausmann, Hwang and Rodrik 2007. The difference with HHR is that we use PRODY of year 2000 for the calculation of EXPY for every year.

Let us look now directly at the export baskets of the countries under study and their transformation. We do so by showing their export "treemaps". A treemap is a visualization that displays data by using nested rectangles. Each rectangle is proportional to the share of a product in the export basket of a country. For each country we use product level data following SITC4 rev2 from UN COMTRADE. For simplicity, we restrict the products shown in the treemaps for each country to those products in which the country has significant presence.[2] The color used in the treemaps is related to the type of good, and the intensity of the color varies with RCA of the product. Here we use Leamer's 1984 classification of products in terms of their factor intensities.

Figure 7 presents export tree maps for Egypt, Morocco and Tunisia. The treemaps show that between 1970 and 2008 the three countries saw a very significant transformation in the composition of their export baskets. Egypt, for example, went from being mainly an exporter of cotton, rice and fruits into an exporter of textiles, garments, metal products and chemicals. Morocco went from being an exporter of primary agricultural products and phosphates in 1970 to an exporter of garments, chemicals, and electronics. Tunisia was an exporter of oil, phosphates and agricultural products in 1970 but became an exporter of garments, electronics and chemicals by 2008.

2) We say a country has significant presence in a product if it has revealed comparative advantage (RCA) greater than 1. We follow Balassa's (Balassa 1964) definition of RCA as the ratio between the export share of product p in country c and the share of product p in the world market.

China, Korea and Thailand experienced a more dramatic transformation (Figure 8). The three Asian countries started with exports dominated by agricultural products and light manufactures and are now important exporters of machinery, electronics and capital intensive goods.

Figure 7
Export of goods composition – Egypt, Morocco and Tunisia

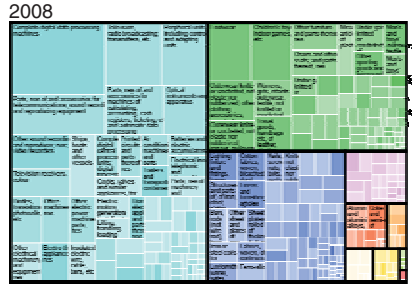
Source: Authors' calculations using COMTRADE data.

Figure 8
Export of goods composition – Comparison countries

A. China

1970

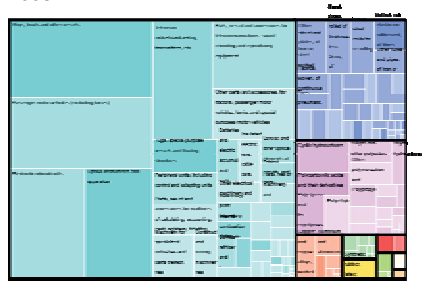
2008



B. Korea

1970

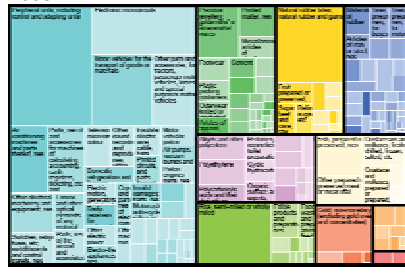
2008



C. Thailand

1970

2008



Source: Authors' calculations using COMTRADE data.

3. Economic Complexity and subsequent growth

During the last 20 years, models of economic growth have often included the assumption that the variety of inputs that go into the production of a country affects its overall productivity. There have been very few attempts, however, to bring this intuition to the data.

In this section we explore the relationship between income levels and the diversity and ubiquity of the products exported by a country. These measures can tells us something about the complexity of the productive structure of Egypt, Morocco and Tunisia.

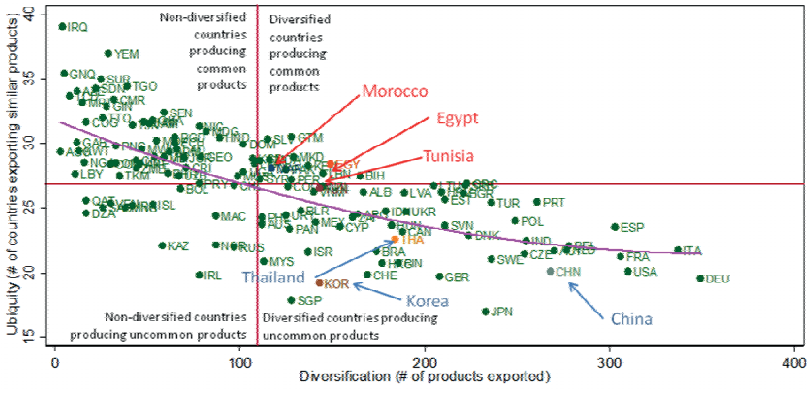
Hausmann and Hidalgo 2009 introduce the idea that the productivity of a country resides in the diversity of its productive capabilities. These can be thought of as non-tradable inputs. According to this idea, cross-country differences in income can be explained by differences in economic complexity, as measured by the diversity of capabilities present in a country. They propose an indirect measure of these capabilities by thinking of them as a building block or Lego piece. In this analogy, a product is equivalent to a Lego model, and a country is equivalent to a bucket of Legos. We assume that countries make all the products for which they have all of the necessary capabilities, just like a child is able to produce a Lego model if the child's bucket contains all necessary Lego pieces. Using this analogy, the question is equivalent to asking whether we can infer the nature of a country's Lego box by looking only at the Lego models that it makes.

Countries differ in the variety of Lego pieces they have and products differ in the variety of Lego pieces they require. We define as the diversification of a country the number of different products that it makes while we define as the ubiquity of a product the number of countries that make it. Countries with a larger variety of Lego pieces will be able to make a larger variety of products. As a consequence, they should be more diversified. By contrast, products that require more Lego pieces will be made only in the countries that have all the requisite pieces. But these are bound to be fewer, making these products less ubiquitous. In addition, countries with more capabilities should be able to make products that require more

capabilities, but these products should be less ubiquitous. Hence, countries with a more varied set of Lego pieces should be more diversified and be able to make less ubiquitous products.

This suggests that there should be a negative relationship between the diversification of a country and the average ubiquity of its products, since both are indirect measures of the capabilities of each country. Figure 9 suggest that this is indeed the case. Countries such as the US and Germany are highly diversified and make products of low ubiquity while the opposite is true for Yemen, Togo and Sudan. The figure shows that Morocco, Egypt and Tunisia have intermediate levels of diversification and ubiquity. Morocco shows the lowest diversification and the highest ubiquity, both indicating a relatively lower variety of productive capabilities. Tunisia's export basket shows the lowest ubiquity of the three countries and has a level of diversification very similar to Egypt's, in spite of having less than 1/6th of the population. Korea, by contrast, has almost the same diversification as Egypt and Tunisia, but is producing goods that are much less common, suggesting their greater complexity. China and Thailand are much more diversified than the three North African countries and their products are on average less ubiquitous. Since both diversification and ubiquity are indicators of a country's diversity of productive capabilities, these indicators already suggest that the North African countries have fewer capabilities than the East Asian comparators.

Figure 9 - Diversification and ubiquity – 2008



Source: Authors' calculations using COMTRADE data.

The use of diversity and ubiquity as estimates of the number of capabilities available in a country, or required by a product, is a crude approximation. Both mappings are affected by the existence of rare Lego pieces. For instance, players holding rare pieces will be able to put together figures that few other players can make, not because they have many pieces, but because the pieces that they have are relatively rare. Consider rare natural resources, such as diamonds. We can see whether their low ubiquity comes from scarcity or complexity by looking at the number of other products that the diamond producers make. If raw diamonds were complex, meaning that they require many capabilities, the countries that make them should be able to make many other products. By contrast, if diamonds have low ubiquity because of some rare special input, we would not expect the countries making them to be diversified. This is revealed by the fact that Botswana and Sierra Leone are diamond exporters that make few other products.

So diversity can be used to correct the information carried by ubiquity and ubiquity can be used to correct the information carried by diversity. We can take this one step further by correcting diversity using a measure of ubiquity that has already been corrected by diversity, and vice versa. We can do this process an infinite number of times. Fortunately, this process converges and the solution at infinity can be described simply as a vector called the Economic Complexity Index (see Appendix B for a description of the methodology).

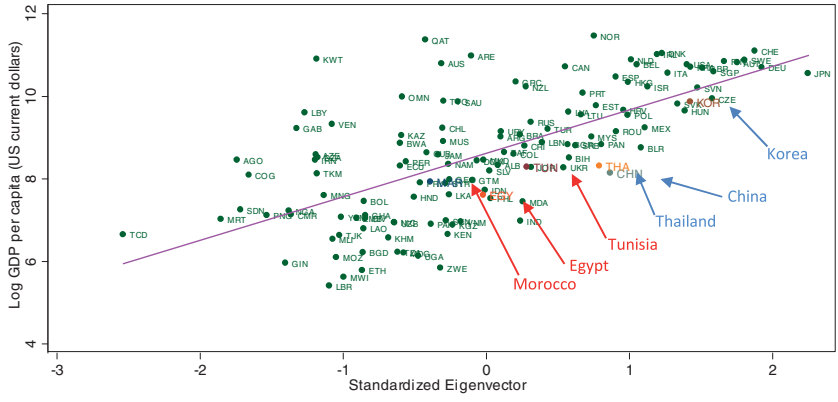
Figure 10 shows the Economic Complexity Index (ECI) and indicates that it is positively correlated with GDP per capita. This relation is remarkable since the ECI uses only information about the diversity and ubiquity of products, not their volume. As opposed to the EXPY measure, introduced by HHR, the ECI does not use any information of prices or income levels associated with the products.

The ECI provides a clear ranking of the endowment of productive capabilities of the six countries. It suggests that the least complex economy is Morocco, followed by Egypt and Tunisia. Thailand and China are significantly more complex than any of the North African

countries and there is a big gap in complexity between China and Korea.

Countries below the trend line are expected to grow faster in the future since they have an income that is lower than that which their productive capabilities should be able to support. The opposite is true for countries above the regression line. Hidalgo and Hausmann (2009) show that the distance between the country and the regression line is a strong predictor of future growth. This suggests that the three North African countries will exhibit higher than average growth in the next years, as they move towards the trend line in figure 10.

Figure 10
Economic Complexity Index and GDP per capita for 2008



Source: Authors' calculations using COMTRADE and WDI data.

To analyze the impact of the Economic Complexity Index (ECI) on future economic growth we estimate two equations where the dependent variable is the annualized growth rate of GDP per capita for the periods 1978-1988, 1988-1998 and 1998-2008. In the first of these equations we do not include ECI and use only two control variables: the logarithm of the initial level of GDP per capita in each period and the increase in natural resource exports in constant dollars as a share of initial GDP. The first variable captures the idea that, other things equal, poorer countries should grow faster than

rich countries and catch up. This is known in the economic literature as convergence. The second control variable captures the effect on growth of increases in income that come from natural resource wealth, which complexity does not explain. In addition, we include a dummy variable for each decade, capturing any common factor affecting all countries during that decade, such as a global boom or a widespread financial crisis. Taken together, these variables account for 28.5 percent of the variance in countries' growth rates. This is shown in the first column of Table 2.

Table 2 – Growth regression using Economic Complexity

	Annualized growth in GDP pc (by decade)	
VARIABLES	(1978-1988, 1988-1998, 1998-2008)	
	(1)	(2)
Initial Income per capita, log	-0.00017	-0.00638***
	(0.001)	(0.001)
Increase in natural resource exports - in constant dollars (as a share of initial GDP)	0.03960***	0.03682***
	(0.008)	(0.010)
Initial Economic Complexity Index (ECI)		0.04430***
		(0.009)
[ECI] X [Income per capita, log]		-0.00371***
		(0.001)
Constant	0.03036***	0.08251***
	(0.008)	(0.011)
Observations	291	291
R^2	0.285	0.434
Year FE	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In addition to the above mentioned variables, the second regression shown in table 2 includes the effect of economic complexity on growth. We do this by adding two additional terms: the ECI at the beginning of the decade and an interaction term between the ECI and the initial level of GDP per capita. The interaction attempts to capture the idea that the contribution of economic complexity to future economic growth depends on the level of per capita income. The second column of Table 2 shows that economic complexity is strongly associated with future economic growth. The negative coefficient on the interaction term indicates that the impact of complexity on growth declines with a country>s level of income. For example, according to the estimation in Column 2, and using data for 1998, an increase in the ECI of one standard deviation would accelerate growth by 2.3 percent per year in a country at the 10th percentile of income, by 1.6 percent in a country at the median income, and by 0.7 percent for countries in the 90th percentile. The variables contained in Column 2 jointly account for 43.4 percent of the variance in growth rates. The difference between these two regressions indicates that the ECI increases the regression's R2 by 15 percentage points. This represents over a third of the explained fraction of the 43.4 percent of the variance in growth rates that the equation explains as a whole.

The estimates of the second column of Table 2 can be used to forecast the growth in GDP per capita. To predict average annualized growth between 2008 and 2020 we make two assumptions. First, we assume a worldwide common growth term for the decade, which we take to be the same as that observed in the 1998-2008 period. Changing this assumption would affect the growth rate of all countries by a similar amount but would not change the rankings. Second, we assume that there will be no change in the real value of natural resource exports as a share of initial GDP. This implies that we assume that natural resource exports in real terms in the next decade will remain at the record-high levels achieved in 2008. This assumption may underestimate the effect on countries whose volumes of natural resource extraction will increase significantly and over-estimate the growth in countries that will see their natural-resource export volumes declines. A higher (lower) constant

dollar price of natural resource exports would improve (reduce) the projected growth performance of countries by an amount proportional to their natural resource intensity.

Table 3 shows a summary of the economic complexity ranking and the expected GDP per capita growth rates forecasted by the growth equation shown in column 2 of table 2. Our sample of 128 countries is sorted by growth rates, and for the sake of simplicity we show the top and bottom 5 countries plus the statistics for Egypt, Morocco and Tunisia. Taking into account in our growth equation the economic complexity of countries and their levels of income, as explained above, we expect China to lead per capita growth in the next 10 years, followed closely by India. Thailand comes in at number 3. Given their complexity and current income, we expect Egypt and Tunisia to experience growth that will locate them among the top 20 countries, with an expected average increase in their GDP per capita close to 3.4% per year. Given the current structure, we expect Morocco to grow at a relative slower pace because the gap between its level of complexity and its level of income is smaller, as can be seen in Figure 11.

Table 3 also shows that Egypt and Tunisia have a good position in terms of their ranking in the Economic complexity index. These countries rank 63 and 47, respectively, which are significantly better than their rank in terms of per capita income (90 and 80).

Table 3
Economic complexity ranking and expected GDP per capita growth rates

Country Name	Economic complexity Index (Ranking 2008)	income 2008 [USD]	Rank income 2008 [USD]	Expected Income 2020 [USD]	Rank Expected income 2020	Expected GDP growth p/c 2010-2020	Rank exp. GDP growth p/c	Regions	Regional rankig - exp. GDP growth p/c
China	29	3,744	81	5,962	70	4.32%	**1**	East Asia and Pacific	1
India	51	1,192	99	1,886	97	4.26%	**2**	South Asia	1
Thailand	31	3,893	78	6,023	69	4.05%	**3**	East Asia and Pacific	2
Belarus	21	5,075	64	7,806	61	3.99%	**4**	Eastern Europe and Central Asia	1
Moldova	50	1,516	97	2,321	95	3.95%	**5**	Eastern Europe and Central Asia	2
Egypt, Arab Rep.	63	2,270	90	3,268	89	3.37%	**18**	Middle east and North Africa	2
Tunisia	47	3,792	80	5,456	75	3.36%	**19**	Middle east and North Africa	3
Morocco	83	2,811	83	3,727	83	2.60%	**56**	Middle east and North Africa	6
Kuwait	116	54,260	5	59,391	6	0.82%	**124**	Middle east and North Africa	16
Congo, Rep.	125	2,601	85	2,794	92	0.65%	**125**	Sub-Saharan africa	23
Sudan	126	1,294	98	1,374	105	0.55%	**126**	Sub-Saharan africa	24
Angola	127	4,081	75	4,329	82	0.54%	**127**	Sub-Saharan africa	25
Mauritania	128	919	113	949	115	0.29%	**128**	Sub-Saharan africa	26

One clear message of this analysis is the importance of the diversity and complexity of a country's productive capabilities. The question is how to increase them. We turn to this issue in the next section.

4. Egypt, Morocco and Tunisia in the product space

In standard trade theory, changes in a country's export basket are a passive consequence of changing factor endowments. To grow, countries accumulate more physical or human capital, or improve the way they mix them. These fundamental changes will be expressed in a different export mix, with the assumption being that there is always a product or set of products through which a country can express its factors of production. Put another way, structural transformation will be a passive consequence of a country increasing its education, financial resources, overall productivity, and so on, and we can therefore forget the world of products and instead focus on the underlying fundamentals.

However, there are many reasons why export diversification may be more complicated than this picture suggests. Several factors may create market failures in changing the export mix, such as industry-specific learning by doing (Arrow 1962; Bardhan 1970) or industry externalities (Jaffe 1986). There may also be technological spillovers among industries (Jaffe, Trajtemberg, and Henderson 1993). The process of finding out which of the many potential products best express a country's changing comparative advantage may create information externalities (Hausmann and Rodrik 2003; Klinger 2007). These hypotheses suggest that moving to new export products may not be a passive consequence of factor accumulation, nor a smooth process that occurs along a continuum.

Hausmann and Klinger (2006 and 2007) investigate the process by which countries move to new export activities, and motivate the concept of a 'product space'. In this space, some products are very near to one another, and others are far apart, and countries change their export mix by jumping to those new export activities that are near their current activities.

This is based on the idea that every product involves a particular combination of capabilities. The combination is unique to the product but the capabilities are less unique. Other products may differ more or less in terms of the required capabilities. The capabilities required to produce wine are very different from those used in the production of cotton. Established industries have already sorted out the many potential failures involved in assuring the presence of all the requisite capabilities, which are then available to subsequent entrants in the industry. But firms that venture into new products will find it much harder to secure the requisite capabilities. Some of their need may be easy to supply. Power, water, corporate lawyers, human resource managers, logistic services, etc. By contrast, they will not find workers with experience in the manufacturing of the product in question or suppliers who regularly furnish that industry. Specific infrastructure needs such as cold storage transportation systems may not exist, regulatory services such as product approval and phytosanitary permits may be underprovided, research and development capabilities related to that industry may not be there, and so on.

Since the set of capabilities required specific to new activity don't yet exist, providing them involves a chicken and egg problem. Capabilities that are specific to an industry will not exist until the industry does, but the industry will not be able to function until the requisite capabilities exist. This coordination problem is bound to be more acute if the missing capabilities are several. This occurs because the provision of any missing capability will not be enough to trigger the appearance of the industry and hence secure its own demand. Entrepreneurs seeking to enter a new export activity like fresh artichokes will not have access to trained agronomists with experience in artichokes specific to that country's growing conditions, nor will they find the particular set of inputs for their new industry. But if the country already exports asparagus, then the entrants to the artichoke industry will find packing firms, rural infrastructure in the appropriate climactic zones for both artichokes and asparagus, regulatory

and customs regimes that can support either product, and so on.

This example highlights the fact that moving to a new industry is easier if the capabilities required already exist, because they are demanded by another industry that uses similar capabilities. The broad set of capabilities required for artichoke exports are rather similar to those required for asparagus production, and therefore it will be easier for firms in the country to enter one industry if the other already exists. Artichokes and asparagus are 'close' to one another in the product space.

But what if firms were trying to enter the artichoke industry in a country that didn't have an asparagus industry, and instead had a large and technologically-advanced deep gold mining industry? The set of engineers, deep drilling equipment, and heavy rail from mines to ports used in deep gold mining are not required in the production of artichokes and hence will provide no stepping stone. Artichokes and gold are therefore 'far' from one another in the product space. For this reason, it is more likely that a country will diversify its export basket towards artichokes if it is an asparagus exporter (e.g. Peru) than if it is a deep gold miner (e.g. South Africa): countries will move to new export activities that are near existing activities in the product space.

In more technical terms, the capabilities needed to produce one good may be more or less similar to the capabilities required to produce some other good. Correspondingly, the probability that a country will develop the capability to be good at producing one good is related to its installed capability in the production of other similar, or nearby goods from which the currently existing productive capabilities can be easily adapted. The barriers preventing the emergence of new export activities are less binding for nearby products that require only slight adaptations of existing capacity.

Hidalgo et al. (2007) map this product space empirically. Rather than attempting to define and measure the similarity of requisite

capabilities directly, the authors measure the distance between two products simply based on the probability that if a country exports one, then it exports the other[3]. If two goods need the same capabilities, this should show up in a higher probability of a country having comparative advantage in both.

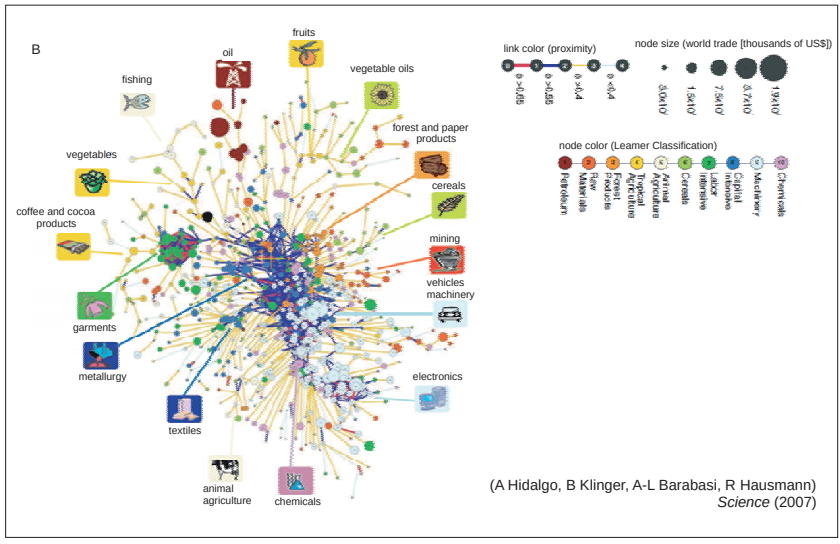
This measure gives the distance between every pair of export activities which creates the product space. It is important to keep in mind that this is measured across all countries and is a technological feature of products, not of countries. There is therefore one product space in which countries move, rather than a product space for each country.

Using the tools of network analysis, we can construct an image of the product space (Hidalgo et al. 2007). Considering the linkages as measured during 1995–2000, we first build the backbone of the space by taking each product and connecting it to its nearest neighbor. The next step is to overlay the strong links between products, and color-code the linkages depending on their strength.[4]

Figure 11 shows the visual representation of the product space. Each node is a product, its size determined by its share of world trade. In these figures, physical distances between products are meaningless: proximity is shown by color-coding the linkages between pairs of products. A light-blue link indicates proximity of under 0.4, a beige link a proximity between 0.4 and 0.55, a dark-blue link a proximity between 0.55 and 0.65, and a red link a proximity greater than 0.65. Links below 0.55 are shown only if they make up the maximum spanning tree, i.e. they are the closes link between one of the products and the rest of the space. To give a sense of the sectors, products are color-coded based on their Leamer (1984) commodity group.

3) The distance between any two products is the minimum of the pair wise conditional probabilities of having comparative advantage. See the appendix for greater detail.
4) See Hidalgo et al. 2007 for a more detailed technical description.

Figure 11 – The product space



This figure reveals that the product space is highly heterogeneous, with a core-periphery structure. There are products in the periphery of the product space that are only weakly connected to other products, and some groupings among these peripheral goods such as the garments cluster (the very dense green cluster at the bottom of the network). There is also a core of closely connected products in the center of the network, mainly of machinery and other capital-intensive goods, as well as a cluster of electronics (light blue products at the top-right of the space) that is well-connected to the core.

This heterogeneous structure of the product space has important implications for export diversification. If a country is producing goods in a dense part of the product space, then the process of export diversification is much easier because the set of acquired capabilities can be easily redeployed to other nearby products. However, if a country is specialized in peripheral products, then this redeployment is more challenging because the distance in capability space is more substantial. Hausmann & Klinger (2007) and Hidalgo et al. (2007) show very strongly that countries move

towards nearby activities over time, and it is very infrequent to observe jumps across large distances in this space.

Figure 12 shows the product space for Egypt, Morocco and Tunisia for years 1980, 1990, 2000 and 2009. This figure helps us to understand the dynamics of the products in which these three countries have developed revealed comparative advantage in world markets. The opacity of a node indicates whether a country does not produce a product with comparative advantage. The product space reveals that the three countries are producing goods competitively in a handful of highly peripheral export sectors in natural resources, as well as in the garments and textile cluster. The presence in these clusters has been weakened because of the erosion of trade preferences. The graphs capture in more detail the findings of the Economic Complexity Index. Morocco, which had the lowest index, seems to be completely absent from the products that are in the core of the product space. Tunisia appears in a relatively better position, with many nodes in the Electronics sector and some in the Machinery sector, while Egypt has an intermediate position. The position of the three countries in the product space is consistent with the results of the Economic Complexity Index discussed above, with Morocco showing the weakest presence and Tunisia the largest.

The footprint of China, Korea and Thailand in the product space for years 1980, 1990, 2000 and 2009 is presented in Figure 13. In general, the three countries show more dynamism in moving towards the dense and more connected parts of the product space. All countries developed a presence in the garments and textile clusters, but their presence there has been dwindling as the countries have moved on to more complex activities such as machinery and electronics.

Figure 12
Where do countries stand in the product space?

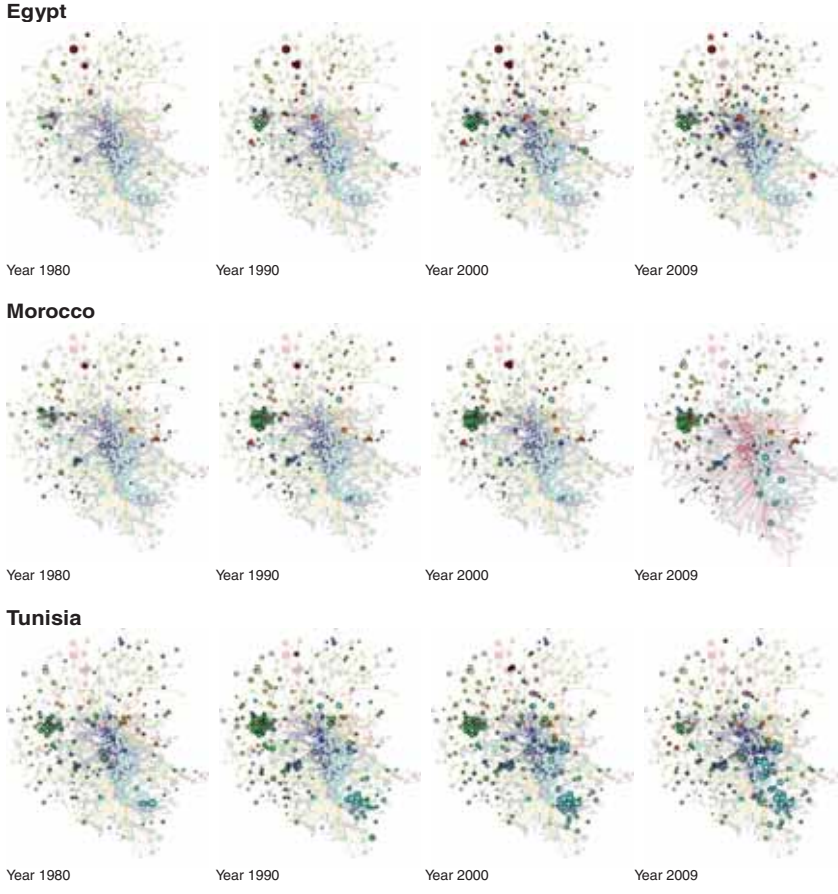
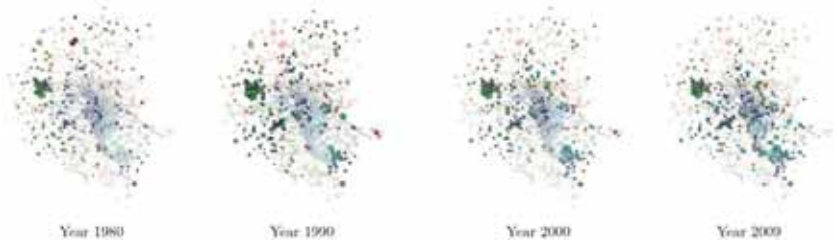
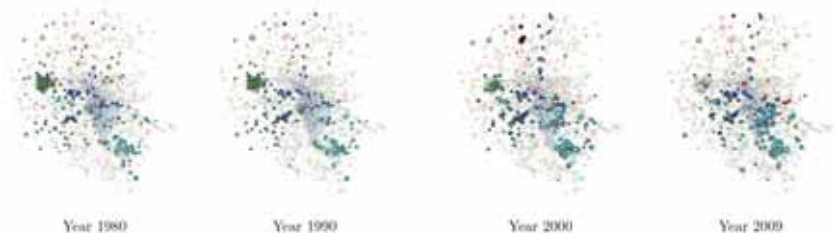


Figure 13
Where do countries stand in the product space?
Comparison group

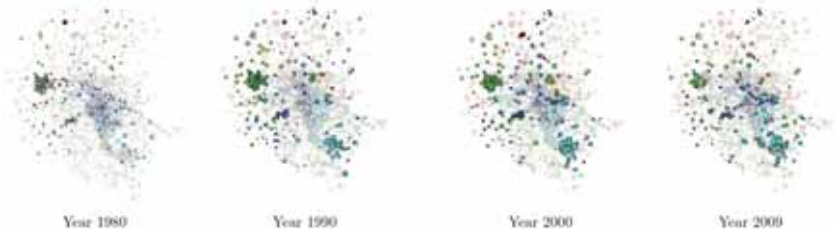
China



Korea



Thailand



Using the Product Space to scan the Possibility Space: Strategic Considerations

We want to use the preceding analysis to understand the strategic options that Egypt, Morocco and Tunisia have in terms of future structural transformation to accelerate their growth rates. However, doing the analysis at the product level becomes quite unwieldy, since we have over 700 products using the UN COMTRADE data using SITC4 rev2 data. To make the analysis more tractable we group products into communities of related products. Instead of using a man-made procedure to group the products, we let the data organize itself by finding the families of products that are most likely to be co-exported. We interpret this to be an indication that they share many of the requisite capabilities. To group the products we use an algorithm introduced by Rosvall and Bergstrom (2008) and discussed in Hausmann etal (2011). Table 4 presents the communities and some trade statistics.

It is important to highlight that the concept of communities is different from the idea of clusters, since the later emphasize input-output connections in the value chain. By contrast, products belong to a community because their production in a given location requires similar capabilities. For example, we find that textiles and garments are quite distinct communities, because the capabilities that go into textiles are different from those that go into garments, even if the textiles themselves are used in garments, and thus belong to the same value chain.

Table 4 – Product Communities

Community Name	Number of Products	World Trade	World Share	Top 3 Countries by Export Volume
Machinery	125	4.4T	20.29%	DEU, USA, JPN
Electronics	52	3.6T	16.71%	CHN, HKG, USA
Oil	4	2.3T	10.49%	SAU, RUS, NOR
Chemicals & Health	64	1.6T	7.47%	USA, DEU, BEL
Other Chemicals	24	1.2T	5.49%	DEU, USA, FRA
Construction Materials & Equipment	44	1.1T	5.23%	CHN, DEU, ITA
Mining	48	1.1T	5.01%	AUS, USA, CHL
Garments	42	1.1T	4.63%	CHN, HKG, ITA
Food Processing	26	603B	2.74%	DEU, ITA, USA
Metal Products	17	496B	2.26%	JPN, DEU, KOR
Aircraft	10	440B	2.00%	FRA, DEU, GBR
Not Classified	36	426B	1.94%	USA, CHN, DEU
Cereals & Vegetable Oils	21	295B	1.34%	USA, BRA, ARG
Home & Office	23	250B	1.14%	CHN, CHE, USA
Meat & Eggs	23	242B	1.10%	USA, BRA, DEU
Ships	8	232B	1.05%	KOR, CHN, JPN
Petrochemicals	5	220B	1.00%	DEU, USA, BEL
Boilers	14	193B	0.88%	CHN, DEU, JPN
Fish & Seafood	11	191B	0.87%	CHN, NOR, THA
Textile & Fabrics	32	189B	0.86%	CHN, ITA, HKG
Tropical Agriculture	16	190B	0.86%	IDN, NLD, MYS
Coal	6	183B	0.83%	AUS, IDN, RUS
Misc Agriculture	22	170B	0.78%	BRA, DEU, FRA
Precious Stones	4	170B	0.77%	IND, ISR, BEL
Pulp & Paper	11	148B	0.67%	USA, CAN, SWE
Agrochemicals	13	141B	0.64%	DEU, USA, CAN
Milk & Cheese	7	134B	0.61%	DEU, FRA, NLD
Beer, Spirits & Cigarettes	6	124B	0.57%	GBR, NLD, DEU
Inorganic Salts & Acids	10	117B	0.53%	USA, CHN, DEU
Cotton, Rice, Soy & others	18	96B	0.44%	USA, IND, THA
Tobacco	6	64B	0.29%	DEU, NLD, BRA
Leather	14	53B	0.24%	ITA, USA, HKG
Fruit	4	45B	0.21%	ESP, USA, CHL
Animal Fibers	7	12B	0.06%	AUS, CHN, ITA

Now, to think strategically we need to define and measure a set of concepts.

- Distance (a characteristic of a country /product pair). It measures how "far" the product is from the country's current productive capabilities. To estimate the distance to a community of products we calculate the average distance of the country to all the products in that community.

- Sophistication (a product characteristic). It measures the weighted average of the GDP per capita of countries with comparative advantage in that product. To calculate the sophistication of a community we measure the average sophistication of the products in that community.

- Strategic value (a characteristic of a country/product pair). It measures how much would the position of a country in the product space improve if it were to develop the capacity to make a particular product, say P. In other words, it measures the benefit of jumping to product P in terms of the reduction in distance to other products. We weigh this reduction in distance using the sophistication of the other products that the country would come closer to. As opposed to the other cases, to estimate the strategic value of a community we calculate the maximum rather than the average strategic value of the products that belong to that community.

Ideally, countries would want to move to products that are at short distances, because this means that they are more likely to succeed, given that they already possess most of the requisite capabilities. By the same token, countries would want to move to products that are more sophisticated, indicating that these products are associated with higher levels of productivity and lead to faster future growth. Products with higher sophistication are made by countries that pay higher wages and may thus provide a cost advantage. Finally, ceteris paribus, countries would rather move to products that have a higher strategic value because this would get them closer to more densely populated and sophisticated parts of the product space, making future diversification easier and more attractive.

The problem is that we seldom find products that are simultaneously near, sophisticated and strategic. This implies that there are important trade-offs that countries need to face and these lead to alternative emphasis in the search for new opportunities.

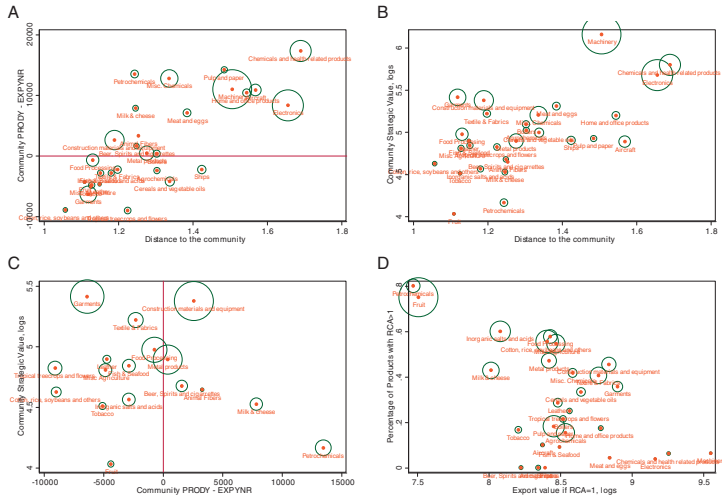
Applying the product space analysis to Egypt, Morocco and Tunisia

We explore the strategic options for Egypt, Morocco and Tunisia by looking at distance, sophistication and strategic. Figure 14 presents four different scattergrams. The circles represent the product communities, and their size is proportional to global trade in them, except in panel d. The measures presented in these figures depend on the position of the country in the product space and, therefore, are country specific.

Figure 14a shows the trade-off between distance and sophistication. Ideally, we would want to move to communities on the upper left, meaning that these would be near the country's current capabilities and of high sophistication. Instead, we find that, for Egypt, communities align on an upward slope. The nearby communities, such as Cotton, et al, and Garments, have low sophistication. In fact, they are below Egypt's current average sophistication. The most sophisticated communities, such as Chemicals and Health Related Products, Electronics and Aircrafts are among the farthest away. The nearest communities with an average sophistication above Egypt's average are Construction Materials and Metal Products. It is important to note also the high position, in this graph, of Petrochemicals and Miscellaneous Chemicals.

Figure 14b shows distance vs. strategic value for Egypt. Again, we find that Electronics, Pharmaceuticals and Machinery are the most strategic but also the more distant. However, among the most near there is a large variance in strategic value. For example, Garments and Fruits are at a similar distance, but the former is much more strategic than the latter in terms of the future opportunities they open up. A similar comment can be said about Construction Materials vs. Petrochemicals.

Figure 14 – Scanning the Possibility Space of Egypt



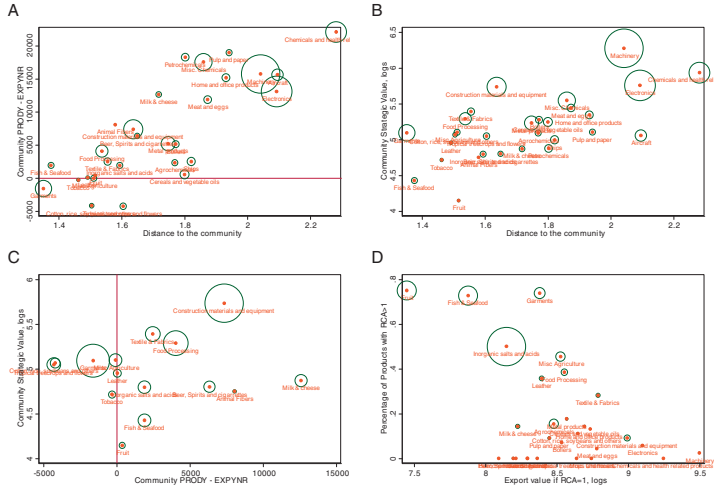
Source: Authors' calculations using COMTRADE and WDI data.

[Panel A shows the average PRODY – EXPY value and the distance to each community from the country's' current export basket. Panel B shows the maximum Strategic of a product inside each community and distance from the current productive structure. Panel C shows the average PRODY-EXPY and the Strategic value of the communities that are closer (distance below the median). Finally panel D shows the percentage of product in which the country has revealed comparative advantage and the export value if the revealed comparative advantage (RCA=1) was developed in the products in which the country is not present. In panels A, B and C the size of the dot is related to average the community share in world trade, while in panel D the size of the dot is related to the current RCA of the country in each community].

Figure 14C looks at sophistication vs. strategic value for communities that are relatively near. This allows us to explore the trade-off between these two criteria, disregarding the concept of distance. In this panel the ideal position is the upper right. Instead, the communities align in a generally negative relationship. Petrochemicals are the most sophisticated, but the least strategic, while Garments are the most strategic, but have very low sophistication. Construction Materials appear as a community that offers a good balance between the two. The final panel of Figure 14 presents the trade-off between communities with high presence vs. communities with high potential market size. We define as presence the percentage of products in

the community in which the country already has RCA greater than [5]. The measure of market size is the value of the increase in exports if the country were to reach RCA=1 in the products in which it is still below this figure1. In fruits and petrochemicals, the country is already present in over 70 percent of the products and the amounts required to reach RCA=1 are limited. By contrast, the country is absent from the three most sophisticated communities, where the additional market share would be much larger. In between, we find that Construction Materials and Equipment, Miscellaneous Chemicals and Garments are in an intermediate position.

Figure 15 – Morocco in the product space



Source: Authors' calculations using COMTRADE and WDI data.

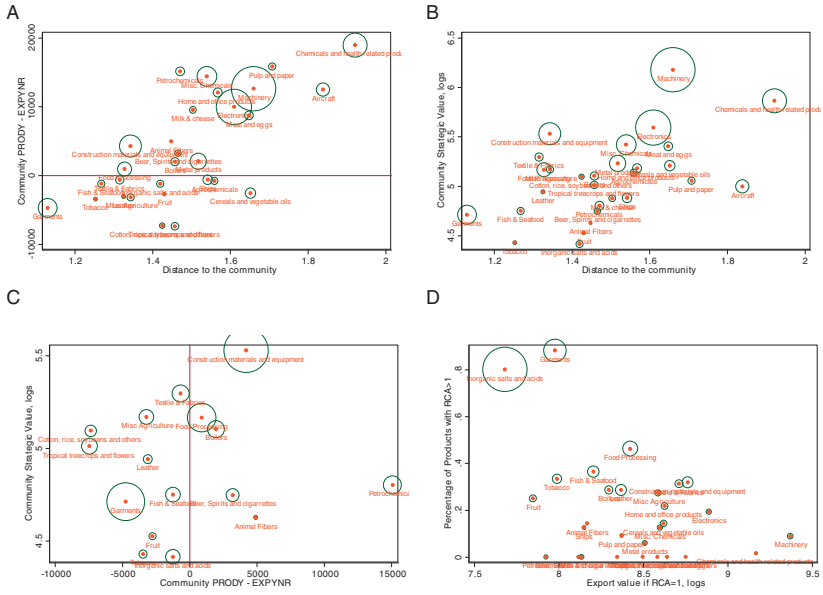
[Panel A shows the average PRODY - EXPY value and the distance to each community from the country's' current export basket. Panel B shows the maximum Strategic of a product inside each community and distance from the current productive structure. Panel C shows the average PRODY-EXPY and the Strategic value of the communities that are closer (distance below the median). Finally panel D shows the percentage of product in which the country has revealed comparative advantage and the export value if the revealed comparative advantage (RCA=1) was developed in the products in which the country is not present. In panels A, B and C the size of the dot is related to average the community share in world trade, and in panel D the size of the dot is related to the current RCA of the country in each community].

5) RCA=1 means that the country would have a participation in this market proportional to its overall size in the global economy.

Figure 15 repeats the same exercise for the case of Morocco. It is interesting to notice that most product communities are more distant to Morocco's current productive structure than they are to those of Egypt. This is a reflection of the fact that Morocco is less diversified and more peripheral in the product space. Panel A shows that Garments, Food Processing, Construction Materials, Milk and Cheese, Petrochemicals and Miscellaneous Chemicals are the communities closest to the desired upper left corner. We do not include Fish & Seafood and Animal Fibers in this list because Morocco already has a strong presence in these products (see Panel D) and they may not represent much in terms of additional exports.

Panel B of Figure 15 shows that Garments, Construction Materials, Textiles and Fabric and Food Processing have high strategic value and are fairly near. Panel C, which focuses on the trade-off between strategic value and sophistication for nearby communities, indicates that Garments are below the current average sophistication of the country, while Construction Materials, Food Processing and Textiles offers more balance between sophistication and strategic value, as they are in general more sophisticated and better connected to other parts of the product space. Finally, panel D of figure 15 shows that Morocco has strong presence in a few communities of products – Fruits, Fish and Seafood, Garments and Inorganic Salts – and that producing competitively most other products will increase by several orders of magnitude the value of the current export basket.

Figure 16 – Tunisia in the product space



Source: Author's calculations using COMTRADE and WDI data.

[Panel A shows the average PRODY – EXPY value and the distance to each community from the country's' current export basket. Panel B shows the maximum Strategic of a product inside each community and distance from the current productive structure. Panel C shows the average PRODY-EXPY and the Strategic value of the communities that are closer (distance below the median). Finally panel D shows the percentage of product in which the country has revealed comparative advantage and the export value if the revealed comparative advantage (RCA=1) was developed in the products in which the country is not present. In panels A, B and C the size of the dot is related to average the community share in world trade, and in panel D the size of the dot is related to the current RCA of the country in each community].

Figure 16 performs the analysis of Tunisia in the product space. Panel A shows that Garments are the closest community, but its sophistication is below the average for the country. Communities that are closer to the upper left corner of the graph are Construction Materials, Petrochemicals, Misc. Chemicals, Home and Office Products and Machinery. However, they are, respectively, at increasing distance.

Panel B of Figure 16 shows the strategic value of each community vs. distance. Machinery has the highest strategic value and,

although fairly distant, is closer than was the case for Egypt and Morocco. Construction materials are much closer than Electronics and Miscellaneous Chemicals, while having similar strategic value, although as panel A shows, not as high a level of sophistication. Electronics is a community where Tunisia already has a presence (see figure 12). For this reason, it is closer to Tunisia's capabilities than it was for the case of Egypt or Morocco.

Panel C of figure 16 focuses on the communities that are below the median distance, and shows the strategic value and PRODY of each community. This graph highlights Construction Materials and Equipments as a community with a very high strategic value and sophistication above the average of the current export basket. Other communities that appear as interesting are Textile and Fabrics, Food processing and Boilers. As opposed to what is the case for Egypt, Tunisia does not find in Garments a high strategic value since it already has a strong presence in that community and its remaining products are of low sophistication.

Finally, Panel D of figure shows the current presence of Tunisia in the different clusters and the gain in export value of achieving RCA of one in each product. Garments and Inorganic salts and acids are the communities where Tunisia has the strongest presence, accounting for revealed comparative advantage in more than 80 percent of the products in each community. In all the remaining communities, Tunisia has presence in less than 50 percent of the products.

5. Timing and sequencing: Learning from the East Asian experience

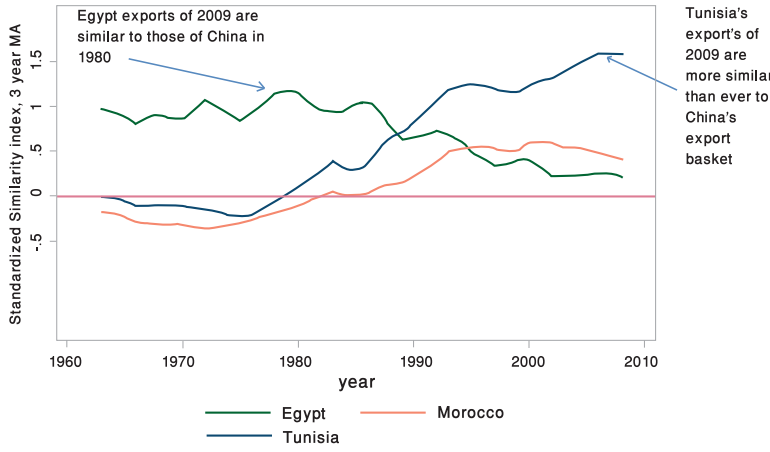
Asian countries have had a sustained and rapid growth, and their economies have exhibited a very rapid structural transformation that underpinned sustained increases in exports. Therefore, it is interesting to ask which new industries did China, Korea and Thailand go into, at what stage in their development process. To address this question, we pose the following question: at what point in their recent economic history were the export baskets

of China, Korea or Thailand most similar to that of today's Egypt, Morocco and Tunisia. Once identified the time period of highest similarity, we ask which new industries these countries moved into subsequently.

To explore this issue we studied the similarity between the export baskets of Egypt, Morocco and Tunisia in the period 2007-2009 and the exports baskets of the three Asian countries for every year since 1962. Specifically, we took the vector of revealed comparative advantage of each country for year 2009. Then we calculate the correlation of this vector with the same RCA vectors of China, Korea and Thailand starting in year 1962 until 2009. We standardize the measure creating a normalized index, where we measure similarity in units of standard deviations from the world average. This index helps to identify the period of time to which the current export baskets of the three North African countries are more similar. This methodology is similar to the one used in (Bahar, Hausmann and Hidalgo 2011) to assess the degree of similarity in the export baskets between pairs of countries. The results of this exercise need to be interpreted with caution since the policies and institutions that work in one country cannot necessarily be transplanted to others. Also, products' quality, prices and demand change over time, so we cannot advise a country to follow what a successful country did before.

Figure 17 presents the index of similarity with China's history of exports. This figure shows that the export basket of Egypt today is most similar to that of China circa 1980. In fact, the similarity was one standard deviation above the world mean. This figure also shows that Tunisia has in 2009 become more similar than ever to the export structure of China, with a degree of similarity of 1.5 standard deviations. This is not surprising since, as we saw in figure 12, Tunisia developed comparative advantage in Machinery and Electronics, two communities in which China has a strong presence (see figure 13). The current export basket of Morocco is mildly more similar than the world average to the exports from China at any point in time.

Figure 17 – Similarity with China



In Figure 18, we present the similarity index with respect to Korea. The recent export basket of Tunisia is interestingly similar to Korea's exports from the mid seventies to mid eighties. The similarity index shows that today's Tunisia and the Korea of the 1980s are 2 standard deviations more similar than other countries in the world. Morocco's exports are similar to the ones of Korea in the same period of time. Finally Egypt's exports appear to be rather dissimilar to what have been the exports of Korea.

We repeated the same procedure analyzing the degree of export similarity with respect to Thailand, but we find that the exports of the three North African countries have been rather dissimilar to Thailand's exports.

In synthesis, Egypt's current export basket is most similar to that of China in 1980, while Morocco and Tunisia's export baskets are most similar to that of Korea circa 1985. Given these findings, we look at the new products that were introduced by each Asian country in the 5 years following the period of maximum similarity. This will give us an idea of the pathways through the product space that were taken by China and Korea at the time they were most similar to Egypt, Morocco and Tunisia.

To perform this analysis, we group products into the communities described above (see table 4) and use two measures to attempt to capture the changes experienced in each country. A first measure is to calculate the increase in revealed comparative advantage experienced in each community.[6] A second approach consists of measuring how many new products in each community gained revealed comparative advantage, in the respective Asian country, in the relevant five-year period. Thus, the first is an intensive measure while the second is extensive.

Figure 18 – Similarity with Korea

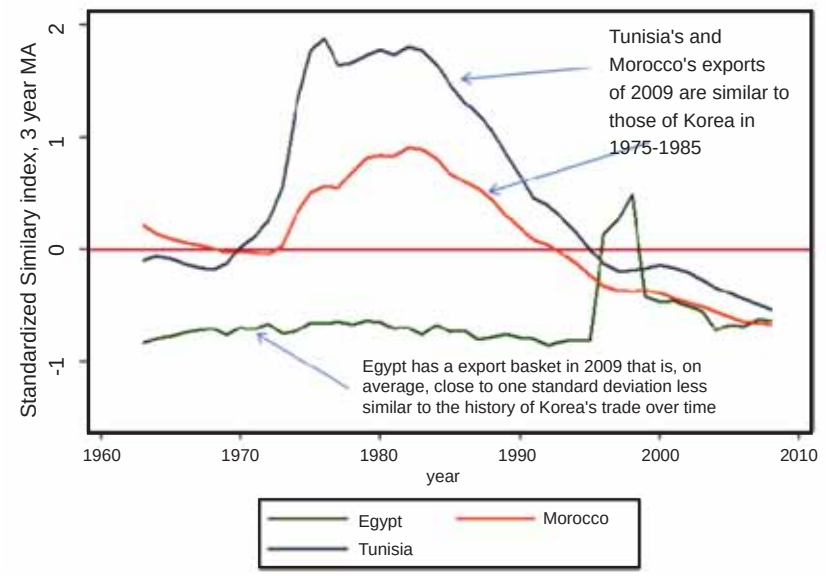


Table 9 shows the communities in which China gained presence from 1980 to 1985. Electronics, Garments, Textiles and Fabrics, and Cotton, rice, etc. are communities of products in which China increased its world market share very significantly in this period. In terms of new products, China enlarged its presence in 12 new products in the Textiles and Fabrics community, achieving a presence in 72% of the product categories of the community. As we saw in Figure 11, Textiles and Fabrics is a community with a

6) We calculate the change in the RCA of each product between two points in time, and then we calculate a community weighted average using the world trade shares of the products in each community.

high strategic value and a level of sophistication much larger than garments. Garments is the second community in which there was development of new products (8), with which China gained presence in 90% of the products. Interestingly, while Electronics is the community in which China increased its revealed comparative advantage the most, it only gained presence in 4 products of the Electronics community, reaching just 15% of total presence. This suggests that China developed the Electronics community by accumulating first a big presence in a few products, before branching out in subsequent periods to other nearby goods. By 2008, China reached revealed comparative advantage in 92% of the products in the Electronics community.

Table 9 – China change in new products – 1980-1985

N	Community	Change in RCA	N	Community	New products	Presence
1	Electronics	1.23	1	Textile & Fabrics	12	72%
2	Garments	0.80	2	Garments	8	90%
3	Textile & Fabrics	0.54	3	Cereals and vegetable oils	5	38%
4	Cotton, rice, soy beans and others	0.38	4	Electronics	4	15%
5	Cereals and vegetable oils	0.15	5	Cotton, rice, soy beans and others	4	61%
6	Misc. Chemicals	0.14	6	Chemicals and health related products	4	13%
7	Leather	0.13	7	Processed minerals	2	33%
8	Processed minerals	0.11	8	Coal	2	33%
9	Coal	0.03	9	Home and office products	2	74%
10	Milk & cheese	0.02	10	Misc. Chemicals	1	29%

Source: Authors' calculations using Feenstra and COMTRADE data.

Table 10 shows the communities in which Korea gained presence in the period between 1985 and 1990. Korea increased its revealed comparative advantage significantly in Machinery and Textiles and Fabrics in this period. Chemicals and Health Related Products was a distant third in this measure. Ranked by the number of new product categories that were added to the export mix, the electronics sector added 9 new products to reach a 60 percent presence in the community, while Machinery added 8 products, reaching only a 14 percent presence. Textiles and Fabrics added 7 products, reaching 72 percent presence. In synthesis, between 1985 and 1990 Korea moved into two sectors where it initially had a very small presence. These were the Machinery and Chemicals and Health Related Products, where by 1990 it only was present in 14% and 13% of the product categories, respectively. It continued

its expansion in the Textiles & Fabrics, where it gained overall comparative advantage and increased its presence to reach 60 percent of the product categories.

Table 10 – Korea change in new products – 1985-1990

N	Community	Change in RCA	N	Community	New products	Presence
1	Machinery	3.33	1	Electronics	9	60%
2	Textile & Fabrics	0.78	2	Machinery	8	14%
3	Chemicals and health related products	0.28	3	Textile & Fabrics	7	72%
4	Food Processing	0.06	4	Chemicals and health related products	5	13%
5	Misc. Chemicals	0.05	5	Food Processing	3	19%
6	Leather	0.03	6	Not classified	3	38%
7	Misc Agriculture	0.03	7	Garments	3	79%
8	Coal	0.02	8	Leather	2	21%
9	Oil	0.02	9	Home and office products	2	43%
10	Heavy Metals	0.01	10	Construction materials and equipment	2	16%

Source: Authors' calculations using Feenstra and COMTRADE data.

What are the lessons of China 1980 for Egypt today? Considering all the obvious caveats and differences in context and history, it is interesting to note that China balanced an expansion based on further populating communities in which it had a high presence, such as Garments and Textiles & Fibers, with a successful bet on Electronics, which was a distant, but highly sophisticated and strategic sector. The lesson that emerges from Korea 1985 for Morocco and Tunisia today is similar. Korea also expanded its presence in communities where it had a large presence, such as Textiles, but made a strategic bet on Machinery, a community in which it was almost absent. This suggests that diffusion to nearby products and jumps to farther away strategic sectors are two distinct and complementary strategies that these two successful countries followed.

6. Policy implications

How should Egypt, Morocco and Tunisia accelerate their processes of structural transformation so as to support higher and more inclusive growth? The analysis of the position of the countries in the product space has allowed us to understand some of the trade-offs that these countries face in terms of distance, sophistication and strategic value. The experience of Korea and China in the period

after they were most similar to the three North African countries suggests that successful countries follow several simultaneous strategies.

To better understand this finding, it is important to note that countries often face an important trade-off between more jobs vs. better jobs. A strategy that emphasizes more jobs would give less importance to product sophistication, meaning that it would accept the challenge of competing with relatively low wage countries because the industries involved could provide jobs that are better than those that many workers in the country might otherwise obtain. For example, if there are many low-wage workers in the informal sector, countries would be better off expanding their presence in the garment sector, even if this would mean moving towards goods that are less sophisticated than the current average export basket. Ultimately, countries need jobs for the citizens they have, not for the citizens they wish they had. If there are many under-employed low-skill workers, industries with lower levels of sophistication may still be the best employment alternative for them. Abandoning industries too early may move workers into unemployment or into lower productivity activities in the informal sector, lowering the overall productivity of the economy. By contrast, more sophisticated industries compete with richer countries and can afford to pay higher wages, making them more suited for segments of the labor market that are tight or for an environment of rising equilibrium real wages.

Consider the following three model strategies.

- Jobs, jobs, jobs: This strategy emphasizes the quantity and not the quality of the potential new jobs that structural transformation could generate. It puts little emphasis on product sophistication, meaning that it is willing to emphasize industries, such as garments, where international competitors are low-income and hence low-wage countries. This makes sense if there is ample involuntary unemployment or low-wage employment that is remunerated at rates below those that would be needed to make the new low-sophistication industries competitive. The strategy

emphasizes industries that are very near the current set of productive capabilities, thus making the development of the new products faster and less risky.

- Parsimonious transformation: This strategy looks for products that are in the vicinity of a country's current set of capabilities but that have higher sophistication. The strategy is willing to trade-off the difficulties involved with traversing greater distance against the benefit of having more sophisticated products that face less competition from low-income countries and hence would be able to expand in an environment of rising real wages.

- Strategic bets: This strategy emphasizes sectors that are more sophisticated and provide a larger strategic value, even if they lie at significantly greater distance. The country may lack many of the requisite capabilities to support those industries and, therefore, the strategy must involve a concerted effort to coordinate the accumulation of the missing capabilities and the encouragement of pioneers into these industries. The strategy is obviously riskier and costlier than the previous ones but, if successful, could change the productive landscape, as it did in China and Korea. Machinery, electronics and chemicals (including pharmaceuticals) tend to be the product communities that exhibit the highest sophistication and strategic value, but in terms of the product space are distant, from what the North African countries' currently produce.

These three strategies can be brought to the data by developing summary indexes that take a stand regarding the relative importance of different goals. We can use these indexes to sort the relative attractiveness of the different product communities in the light of each strategy. We construct the indexes by measuring the deviations of distance, sophistication, market size and strategic value by using the following equation:

$$Index_i = a_{Distance}\left(\frac{Distance_{ij} - \min(Distance_j)}{\max(Distance_j) - \min(Distance_j)}\right) + a_{PRODY}\left(\frac{\max(PRODY_j) - PRODY_{ij}}{\max(PRODY_j) - \min(PRODY_j)}\right) + a_{wtshare}\left(\frac{\max(wtshare_j) - wtshare_{ij}}{\max(wtshare_j) - \min(wtshare_j)}\right) + a_{wtshare}\left(\frac{\max(StratValue_j) - StratValue_{ij}}{\max(StratValue_j) - \min(StratValue_j)}\right)$$

The three strategies introduced above can be represented as different weights. The indexes represent a valid comparison within each country, but cannot be used to compare between countries, because they normalize the distance to the within country variation.

Table 5 shows the chosen weights to characterize each strategy. These weights where set arbitrarily and are just to help illustrate the difference between possible strategies. For the "Jobs, Jobs, Jobs" strategy we emphasize the need for targeting sectors that are close to the current productive structure, and therefore easy to jump products, giving less attention to the other dimensions that characterize the product space. In the "Parsimonious Transformation" strategy we assign less weight to the distance and we give more weight to the sophistication and strategic value of products. Finally, the "Strategic Bets" approach focuses mostly on the sophistication and strategic value of products. Table 6 through 8 ranks the different product communities for the three strategies and countries.

Table 5 – Weights in the three strategies

	Jobs, jobs, jobs	Parsimonious Transformation	Strategic Bets
Distance	0.70	0.50	0.20
PRODY	0.10	0.20	0.30
World trade share	0.10	0.10	0.10
Strategic Value	0.10	0.20	0.40

Table 6 – Strategies for Egypt

	Community	% with RCA	JJJ Index	Community	% with RCA	PT Index	Community	% with RCA	SB Index
1	Cotton, rice, soy beans and others	0.56	0.27	Construction materials and equipment	0.45	0.36	Machinery	0.06	0.21
2	Garments	0.36	0.27	Garments	0.36	0.38	Chemicals and health related products	0.06	0.34
3	Food Processing	0.58	0.29	Food Processing	0.58	0.40	Misc. Chemicals	0.42	0.40
4	Construction materials and equipment	0.45	0.31	Machinery	0.06	0.40	Electronics	0.04	0.42
5	Misc Agriculture	0.55	0.32	Misc. Chemicals	0.42	0.42	Construction materials and equipment	0.45	0.43
6	Tobacco	0.17	0.34	Cotton, rice, soy beans and others	0.56	0.44	Meat and eggs	0.04	0.48
7	Fruit	0.75	0.34	Textile & Fabrics	0.41	0.44	Pulp and paper	0.18	0.50
8	Fish & Seafood	0.09	0.34	Misc Agriculture	0.55	0.45	Home and office products	0.17	0.51
9	Leather	0.29	0.34	Fish & Seafood	0.09	0.45	Garments	0.36	0.51
10	Textile & Fabrics	0.41	0.37	Leather	0.29	0.46	Textile & Fabrics	0.41	0.54

Table 7 – Strategies for Morocco

	Community	% with RCA	JJJ Index	Community	% with RCA	PT Index	Community	% with RCA	SB Index
1	Garments	0.74	0.23	Garments	0.74	0.37	Machinery	0.02	0.22
2	Fish & Seafood	0.73	0.28	Construction materials and equipment	0.09	0.39	Chemicals and health related products	0.00	0.33
3	Tobacco	0.00	0.34	Food Processing	0.38	0.42	Misc. Chemicals	0.00	0.38
4	Food Processing	0.38	0.34	Machinery	0.02	0.42	Electronics	0.06	0.40
5	Leather	0.36	0.35	Fish & Seafood	0.73	0.44	Construction materials and equipment	0.09	0.40
6	Misc Agriculture	0.45	0.36	Textile & Fabrics	0.28	0.44	Home and office products	0.13	0.47
7	Textile & Fabrics	0.28	0.37	Misc. Chemicals	0.00	0.46	Pulp and paper	0.09	0.48
8	Cotton, rice, soy beans and others	0.11	0.37	Misc Agriculture	0.45	0.46	Meat and eggs	0.04	0.48
9	Construction materials and equipment	0.09	0.37	Leather	0.36	0.47	Petrochemicals	0.00	0.50
10	Animal Fibers	0.00	0.40	Animal Fibers	0.00	0.47	Food Processing	0.38	0.52

Table 8 – Strategies for Tunisia

	Community	% with RCA	JJJ Index	Community	% with RCA	PT Index	Community	% with RCA	SB Index
1	Garments	0.88	0.25	Machinery	0.09	0.38	Machinery	0.09	0.21
2	Construction materials and equipment	0.32	0.36	Construction materials and equipment	0.32	0.39	Chemicals and health related products	0.02	0.34
3	Fish & Seafood	0.36	0.38	Garments	0.88	0.43	Electronics	0.19	0.39
4	Textile & Fabrics	0.31	0.38	Misc. Chemicals	0.13	0.46	Misc. Chemicals	0.13	0.41
5	Food Processing	0.46	0.39	Textile & Fabrics	0.31	0.46	Construction materials and equipment	0.32	0.44
6	Tobacco	0.33	0.39	Food Processing	0.46	0.47	Home and office products	0.22	0.51
7	Leather	0.29	0.43	Electronics	0.19	0.47	Meat and eggs	0.00	0.52
8	Misc Agriculture	0.27	0.43	Petrochemicals	0.00	0.50	Pulp and paper	0.09	0.53
9	Petrochemicals	0.00	0.49	Fish & Seafood	0.36	0.50	Petrochemicals	0.00	0.54
10	Machinery	0.09	0.49	Misc Agriculture	0.27	0.51	Textile & Fabrics	0.31	0.57

The tables are self-explanatory. The product communities are ranked according to the score in the relevant index. The “Jobs, Jobs, Jobs” strategy prioritizes nearby communities where there is already a large presence, such as Garments. The “strategic bets” approach puts an emphasis on more distant communities with more sophisticated and well connected products, such as Machinery. Interestingly, the intermediate approach ranks Construction Materials and Equipment first for Egypt, Garments as first for Morocco and Machinery first for Tunisia, a reflection of the different levels of complexity that each country has achieved.

Ultimately, countries develop by being able to increase the number of different activities that they can successfully engage in and by moving towards activities that are more complex. The policy message for most countries is clear: create an environment where a greater diversity of productive activities can thrive and, in particular, activities that are relatively more complex. To do this, countries need to be able to identify the missing capabilities that slow economic transformation and address them. For this task, the product space is a map that helps chart the opportunities and rewards available to each country. These are maps that are specific to them and do not represent one-size-fits-all development advice. A map empowers by describing opportunities that would not be obvious in the absence of it. If the secret of development is the accumulation of productive knowledge, at a social more than at the individual level, then the process necessarily requires the involvement of many explorers, not just a few planners.

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Appendix: Technical Details

PRODY and EXPY

EXPY is calculated by first measuring the sophistication of each product, *PRODY*, as the revealed comparative advantage (RCA)-weighted GDP per capita of each country that exports the good:

$$PRODY_{i,t} = \sum_{c} \frac{\left(xval_{i,c,t} / X_{c}\right)}{\sum_{i}\left(xval_{i,c,t} / X_{c}\right)} Y_{c}$$

where $xval_{i,c,t}$ is the value of exports of good *i* by country *c* in year *t*, X_C is the total exports by country c, and Y_C is the GDP per capita of country *c.* This product-level measure of sophistication is then used to measure the sophistication of a country's export basket as a whole. This measure, *EXPY*, is simply the weighted average of the *PRODY* of each good (*i*) that the country *c* exports, with the weights being the shares of each good in the country's export basket (X_C). It represents the income level associated with a country's export package.

$$EXPY_{c,t} = \sum_{i}\left(\frac{xval_{c,t,i}}{X_{c,t}}\right) PRODY_{i,t}$$

Distance

Proximity is the inverse of the distance between goods *i* and *j* in year *t*. It is defined as:

$$\varphi_{i,j,t} = \min\left\{P\left(x_{i,t} \mid x_{j,t}\right), P\left(x_{j,t} \mid x_{i,t}\right)\right\}$$

where for any country c,

$$x_{i,c,t} = \begin{cases} 1 & if \quad RCA_{i,c,t} > 1 \\ 0 & otherwise \end{cases}$$

and where the conditional probability is calculated using all countries in year *t.* This is calculated using disaggregated export data across a large sample of countries from the World Trade Flows data from Feenstra and others (2005) and UN COMTRADE.

Open forest

It is calculated first by measuring the density of the current export basket of a country around any good. This is the distance of good i from country c's export basket at time t, calculated as the sum of all paths leading to the product in which the country is present, divided by the sum of all paths leading to the product. Density varies from 0 to 1, with higher values indicating that the country has achieved comparative advantage in many nearby products, and therefore should be more likely to export that good in the future.

$$density_{i,c,t} = \left(\frac{\sum_{k} \varphi_{i,k,t} x_{c,k,t}}{\sum_{k} \varphi_{i,k,t}} \right)$$

Hausmann and Klinger (2007) show that this measure of density is indeed highly significant in predicting how a country's productive structure will shift over time: countries are much more likely to move to products that have a higher density, meaning they are closer to their current production.

We then aggregate this measure of density, which is for a country around any single product, to an overall measure of the connectedness of a country's export basket. This country-level measure is called "open forest". A higher value indicates that the current export basket is a part of the product space that is well connected to other new and valuable opportunities for structural transformation. In other words, a high open forest indicates that the country is located in a dense part of the product space. A low value of open forest indicates the country is specialized in a sparse, unconnected part of the product space. In essence, this number summarizes the visual analysis conducted above with the product space maps.

Open forest is calculated as follows:

$$open\_forest_{c,t} = \sum_{i} \sum_{j} \left[\frac{\varphi_{i,t,j}}{\sum_{i} \varphi_{i,j,t}} \left(1 - x_{c,j,t}\right) x_{c,i,t} \, PRODY_{j,t} \right]$$

Strategic value

It is the change in open forest in country c and time t if product i goes from being absent to being present. Some products are in a dense part of the product space, meaning that they are intensive in capabilities that are easily deployed to a wide range of other goods. The implication is that successfully producing these goods would create capabilities with significant value for other new products. On the other hand, other products are located in the periphery, or in a part of the product space where the country has already achieved comparative advantage and acquired the requisite productive capabilities. Therefore, these products have a low strategic value, as successfully producing them would offer little in terms of future structural transformation, even if they are highly valuable in their own right (i.e. have a high PRODY).

Economic Complexity Index

We define M_{cp}, as a matrix that is 1 if country c produces product p with revealed comparative advantage (RCA>1), and 0 otherwise, we can measure diversity and ubiquity simply by summing over the rows or columns of that matrix. Formally, we define:

$$Diversity = k_{c,o} = \sum_{p} M_{cp}$$

$$Ubiquity = k_{p,o} = \sum_{c} M_{cp}$$

To generate a more accurate measure of the number of capabilities available in a country, or required by a product, we need to correct the information that diversity and ubiquity carry by using each one to correct the other. For countries, this requires us to calculate the average ubiquity of the products that it exports, the average diversity of the countries that make those products and so forth. For products, this requires us to calculate the average diversity of the countries that make them and the average ubiquity of the other products that these countries make. This can be expressed by the recursion:

$$k_{c,N} = \frac{1}{k_{c,O}} \sum_{p} M_{cp} k_{p,N-1} \quad (3)$$

$$k_{p,N} = \frac{1}{k_{p,O}} \sum_{p} M_{cp} k_{c,N-1} \quad (4)$$

We then insert (4) into (3) to obtain

$$k_{c,N} = \frac{1}{k_{c,O}} \sum_{p} M_{cp} \frac{1}{k_{p,O}} \sum_{c'} M_{c'p} k_{c',N-2} \quad (5)$$

$$k_{c,N} = \sum_{c'} k_{c',N-2} \sum_{p} \frac{M_{cp} M_{c'p}}{k_{c,O} k_{p,O}} \quad (6)$$

and rewrite this as :

$$k_{c,N} = \sum_{c'} \tilde{M}_{cc'} k_{c',N-2} \quad (7)$$

where

$$\tilde{M}_{cc'} = \sum_{p} \frac{M_{cp} M_{c'p}}{k_{c,0} k_{p,0}} \quad (8)$$

We note (8) is $\tilde{M}_{cci}$ satisfied when $k_{c,N} = k_{c,N-2} = 1$. This is the eigenvector of which is associated with the largest eigenvalue. Since this eigenvector is a vector of ones, it is not informative. We look, instead, for the eigenvector associated with the second largest eigenvalue. This is the eigenvector that captures the largest amount of variance in the system and is our measure of economic complexity. Hence, we define the Economic Complexity Index (ECI) as:

ECI = eigenvector associated with the second largest eigenvalue of $\tilde{M}_{cci}$ (9)
where $\tilde{M}_{cci}$ *is given by* (8).

Country Specific Context Review of existing policies and identification of constraints

Jieun Choi and Kaouther Abderrahim

1. Introduction

The issues of production capacity and competitiveness are critical in shaping a country's ability to generate the economic and financial resources required to tackle social challenges, such as unemployment and poverty. Competitiveness is becoming an important issue in the debate on international development, particularly owing to the continued marginalization of some developing countries, especially African countries, in international trade. Despite the reforms and improvement in the economic performance of African economies in the last few years, the continent continues to experience a strong decrease in its share of international trade.

Despite the economic progress in the region, Egypt, Morocco and Tunisia countries are experiencing significant development challenges related to insufficient economic and social inclusion. Economic growth has thus been limited to some sectors and its fruits unevenly distributed among the populations. Moreover, and despite relatively high growth rates, job creation has not kept pace with new entrants in the labor market and unemployment rates have thus remained sticky high, above 10 percent in the region and higher than in most other developing regions.

Economists have traditionally focused on how government can encourage development by improving the fundamental determinants of investment and productivity growth: education and health services, infrastructure, governance. In this view, the transformation of a country's economy to produce more sophisticated goods that embody higher technology, and concomitant increases in incomes, depends on improving these fundamentals, and not on the set of goods that the economy initially produces. Thus policies can focus on the fundamentals, and ignore the structure of production that results. By contrast, Hausmann (2005) shows that technological progress requires policies that looks beyond the fundamentals, for two reasons. First, the initial structure of production influences future productivity growth. In particular, countries with a more sophisticated export basket grow faster, even controlling for the initial level of income (Hausmann 2009). Second, market failures such as industry-specific learning by doing, knowledge spillovers, and the potential for coordination failures means that government has a key role in enabling firms to produce more sophisticated goods, and thus foster future growth.

This view may offer important insights for the North African economies. While export growth has been rapid (averaging 15 percent in Egypt, 7 percent in Tunisia and 5 percent in Morocco over the last decade), the structural transformation that typically accompanies rapid economic growth (Kuznets, 1955; Chenery, 1986) has been limited. And the three countries did not improve their relative position in the world in terms of income per capita in the decade to 2009. Traditional products comprise a large proportion of exports, and the industry structure has remained largely unchanged over the past decade, even with the high growth rate. In turn, there was little technological progress or knowledge spill-over from more sophisticated industry. As a result, export growth did not lead to an adjustment of the industrial structure towards more sophisticated industries.

Matters have not been helped by the slowdown in demand from key European markets over the past three years; the unrest of early

2011 in Egypt and Tunisia will create further short-term uncertainties even if the longer term result is renewed reform dynamism.

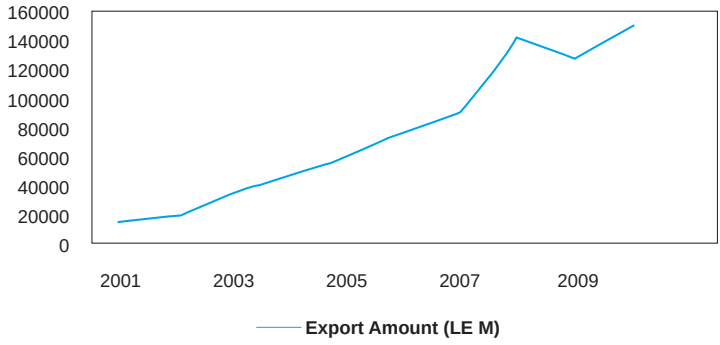
Several trade strategies and export promotion policies have been undertaken by the governments of Egypt, Morocco and Tunisia; however, export sophistication is still below expectations. A strategic review of government policies in potential export industries is crucial to identify gaps and obstacles encountered in reforms initiated over the past decade and to address constraints which hinder Egypt, Morocco and Tunisia from improving the sophistication of their export products.

The next chapter formulates policy recommendations to address the constraints limiting export performance in Egypt, Morocco and Tunisia, from three country studies. Each study describes the export sector, including the impact of previous governments' export promotion policies and the current trade environment; the contribution of major stakeholders; and the effect of trade agreements. The studies conclude by identifying constraints that discriminate against exports, and recommending policies that would improve export sophistication in each of the three countries.

2. How to move up to higher growth in Egypt

Reforms beginning in 2004 to improve the business environment and facilitate trade boosted real export growth to 17 percent from 2005-09, despite the 2009 decline (in nominal terms) with the global financial crisis (Table 1 and Figure 1). This remarkable growth rate is about three times higher than average growth in the region and in countries with similar levels of income. Exports are now falling with the political turmoil in the Arab states. However, the Ministry of Trade and Industry expects that exports will recover quickly once political disruptions subside, particularly given the destruction of productive capacity in Libya and Yemen.

Figure 1 Egypt Export to World



Source: Central Agency for Public Mobilization and Statistics

Table 1: Real growth in total exports (goods and services, %)

	1995-1999	2000-2004	2005-2009
Egypt, Arab Rep.	3.53	10.38	17.42
Tunisia	3.96	4.18	4.63
Morocco	5.94	6.85	6.19
South Korea	17.09	12.41	5.22
MENA simple average	5.45	5.44	6.58
Lower Middle Income simple average	6.02	9.41	5.76
High income OECDs simple average	8.15	5.60	3.08

Source: WTI 2010, World Bank

Despite the impressive export growth for the recent years, exports are still not a major driver of growth in Egypt. Exports equaled only 34 percent of GDP in 2005-09, well below the levels of 57 percent in Tunisia, 45 percent in Korea, about 50 percent in MENA, and 43 percent in other lower middle income coutnries (Table 2). And the correlation between export and GDP growth from 2004-10 is only -.07 and 0.27 if the years affected by the global economic crisis (2009 and 2010) are excluded (Figure 2). This correlation is well below levels in most countries, for example 0.78 for Tunisia for 0.59 for South Korea.

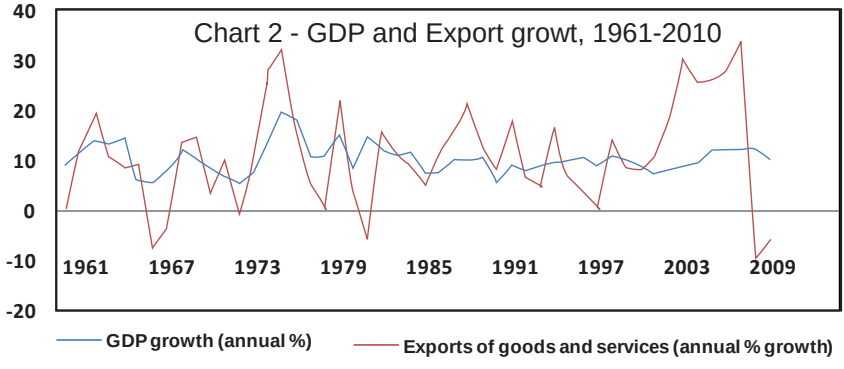
Table 2 - Export of goodds and services as % of GDP

	1995-99	2000-04	2005-09
Egypt	18.57	21.98	33.71
Tunisia	42.84	45.70	57.50
Morocco	26.76	29.17	35.51
S. Korea	34.47	37.02	44.74
MENA	30.21	35.64	49.45
Lower Middle Income	37.81	40.98	43.50
OECD	39.83	45.65	50.41

Source: WTI 2010, World Bank

The implications of this disconnect between exports and output are unclear. The low level of exports relative to GDP may indicate considerable potential for further export expansion.

Figure 2 - GDP and Export growth, 1961-2000



Source: COMTRADE

The low correlation between the growth of exports and GDP, while not unprecedented given the low level of exports, may indicate that the recent export expanion reflects short-term effects rather than fundamental economic changes.

Thus important questions remain about Egypt's export perfromance. Was the recent export boom driven by policy reforms? Is rapid export growth sustainable? What is the potential for upgrading

the product mix? This chapter considers whether the previous government's export promotion policies were successful, and reviews in detail the current trade environment, including the contribution of major stakeholders, the experience with free trade zones, and the impact of trade agreements. The overall goal is to formulate policy recommendations to address the constraints limiting export performance.

Industrial Policy: Historical Background

Egyptian governments have undertaken active industrial policies since the 1960s, although the objectives and content have differed (Table 3).

Table 3 - Industrial policies over time in Egypt

Period	Contents of Industrial Policies	Attitude towards exports
1960s	Centralized economy : nationalism, protectionism and import substitution. Large public investment in heavy industries, such as iron, steel and chemical industries.	Domestic production oriented, exports are not a priority
1970s	Openness euphoria : liberalizing trade and payment systems. However, import substitution was pervasive and manufactured exports remained stagnant.	
1980s	Efforts to dismantle central planning and free zones and tax holidays used as investment incentives. However, openness was limited at the initial stage.	
1990s - 2003	Structural adjustment program and economic reforms: price and trade liberalization, privatization, reforms in subsidies, tax, financial sector and unified exchange rate (but still pegged to the dollar). Policy regime more market oriented than previously, but some controls remained. Some industrial parks were built.	Transitional period
2004	Trade regulation reforms, reduction in tariffs, floating exchange rate regime, business environment improvements, fiscal and banking sector reforms, more trade agreements and industrial parks, industrial policies shift from sector specific policies to overall policies, support for SMEs	Export oriented growth is a key priority, however, not as much as East Asia

Industrial policies 1960s - 2003

1960s

Egypt had a highly centralized economy under Gamal Abdel Nasser, who became the second President of Egypt in 1956. The first industrialization program, initiated in 1957, abandoned the unsuccessful efforts of the previous government to encourage foreign investment through tax incentives. The government nationalized large-size firms involved in services and manufacturing, raised import barriers, subsidized production of some products (in part by allocating access to scarce imports), and increased investment in public enterprises, in particular in heavy industries, such as iron, steel and chemical industries. The economy performed relatively well, thanks to successive increases in the price of oil, although market prices remained distorted.

1970s

Anwar Sadat, president from 1970 to 1981, initiated the Open Door Policy in 1974 (referred to as 'Openness Euphoria'), which involved various reforms to accelerate growth and improve efficiency, including simplifying business regulations and liberalizing the trade and payments system to encourage foreign investment.

The results, however, were disappointing. While the Open Door Policy involved some liberalization of the economy, the development strategy continued to be based on import substitution. Manufactured exports, other than textiles and clothing, remained virtually stagnant. Moreover, these policies did not contribute much to productivity growth. Page and Handousa (1986) found an important asymmetry in the impact of the reforms between the rapidly expanding import substitution sector with high productivity growth and the stagnant traditional export sector. Much of the observed productivity growth of the import substitution sector may be ascribed to improvements in capacity utilization, which were not sustainable.

1980s

Vice President Hosni Mubarak ascended to the presidency after President Sadat's assassination in 1981. The new Government dismantled the central planning apparatus and increased incentives

for investors by creating free zones with tax holidays. However, the extent of reforms to open the economy was limited, while economic performance suffered from high international interest rates and the global recession in the early 1980s, plus the fall in the crude oil export price from $34 a barrel in 1981 to $12 in 1986. As a result, the budget deficit averaged 18 percent of GDP over the decade, the current account deficit mushroomed, and external debt increased from $22.1 billion in 1980 to $31.1 billion in 1990. Inflation topped 20 percent and unemployment reached 10 percent by 1990.

1990-2003

In response to this crisis, a Paris Club agreement considerably reduced the country's debt service burden, while a standby agreement was concluded with the IMF and a structural adjustment program with the World Bank. As a result, the current account and BOP deficits were reduced and turned to surplus over time.

During this period Egypt relaxed price and interest rate controls, reduced subsidies, reduced inflation, and partially liberalized trade and investment. Also, the government started its first steps towards privatization. In turn, manufacturing became less dominated by the public sector, especially in heavy industries. These policies helped produce a gradual reduction in economic distortions and increased growth. As a result, Egypt graduated from the low income category to lower middle income category, according to the World Bank Country Classification. However, many features of the initial industrial policy remained in place – pervasive public ownership, high tariffs, and implicit subsidies of inputs, especially of energy.

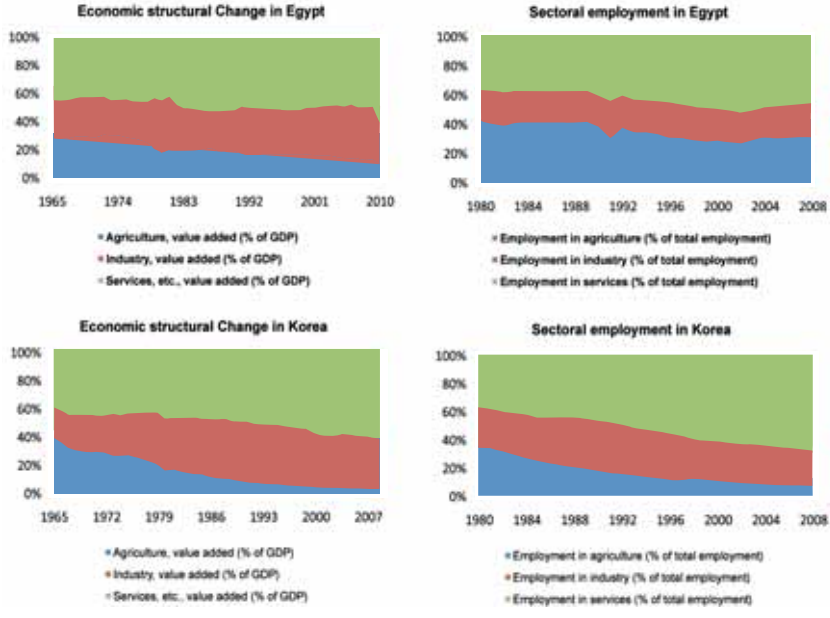
Assessment of industrial policies before 2004

Egypt's structural deficit – failure to create jobs in productive sectors

Economic policies consistently aimed to promote industry, but the progress of structural transformation was slow. The shares of industry in GDP and employment have changed little since 1965 (Figure 3). Agriculture's shares of output and employment have fallen, with the decline in employment share less than the output

share, indicating that productivity in agriculture has not kept pace with other sectors. The decline in agriculture's share of GDP and employment has been absorbed by the service sector. However, employment in high-productivity service activities, such as banking, insurance and finance, has grown very slowly, while employment in low-wage, low-productivity (and largely informal) sectors such as informal trade (e.g. street vendors) and small scale repair shops has grown rapidly (Page 2011).

Figure 3
Economic structure and employment changes over time



Source: WDI 2010, World Bank

Egypt's experience contrasts sharply with that of South Korea, where the service and industry sectors have increased over time and nearly absorbed the agriculture sector. Interestingly, industry's share of total employment has fallen slightly in South Korea, despite the increasingly important role of the industrial sector. This implies that productivity has increased more in industry than in agriculture and services.

Unproductive manufacturing sector and low manufacturing exports - Failure to industrialize

Several studies have found that structural transformation is crucial for economic growth. Economies which increased their income level from the low income to high income typically have experienced economic structural transformation (Kuznets, 1955). Countries that are able to upgrade their production and exports by moving into new and more complex economic activities tend to grow faster (Hausmann, 2009). In Egypt, structural change has been limited; in particular the contribution of manufacturing to output and exports remains low.

Table 4
Manufacturing export and manufacturing value added

	Manufactures exports (% of goods exports)					Manufacturing, value added (% of GDP)				
Country\ Year	1970	1980	1990	2000	2010	1970	1980	1990	2000	2010
Egypt	27.12	10.95	42.47	38.43	36.65	N/A	12.25	17.76	19.39	13.90
Morocco	9.68	23.51	52.25	64.09	65.45	N/A	16.87	18.99	17.46	16.05
Tunisia	19.11	35.72	69.11	77.00	75.37	8.40	11.79	16.89	18.25	15.00
Korea	76.53	89.55	93.52	90.75	89.59	17.79	24.45	27.26	28.26	27.68
Lower middle income	16.98	22.76	43.99	51.56	48.35	14.67	16.18	17.77	17.01	17.13
OECD members	69.62	69.27	76.28	79.46	73.22	N/A	24.95	22.12	18.95	16.08

Source: WDI. 2010 figures are substituted with the latest year figures for Tunisia, Korea, MENA and OECD.

Egypt's share of manufacturing in goods exports is about half the share in net oil importers such as Morocco, Tunisia and South Korea (Table 4). Trends in the share of manufacturing in exports and GDP are difficult to interpret given the extreme variability in the price of Egypt's oil exports. Thus the share of manufacturing in exports rose with the drop in the oil price in the 1980s, to a

peak of 42 percent 1990, although the rise in the oil price in the past decade resulted in only a modest decline in manufactures' share. The difference between Egypt and other countries in the share of manufactures in GDP is much smaller than in the share of manufactures in exports. This implies that manufacturing production in Egypt is probably more for the domestic than the international market, compared to Morocco and Tunisia. This might result from the early years of the industrial policies, such as import substitution in the 1960s, which focused on domestic production, rather than exports. As a result, Egypt exports less than $100 in manufactures per capita, which is particularly low compared to other countries.

Lagging diversity and sophistication – failure to set the stage for future growth

Recent researches find that not only the volume of exports, but also the kinds of goods exported, matters for economic growth. Economies with more diversified export structures tend to have higher incomes per capita (Cadot, Carrere, and Strauss-Kahn, 2011), and countries which export more sophisticated products tend to grow faster (Hausmann, Hwang, and Rodrik, 2007).

The weak development of manufacturing production and exports in Egypt was accompanied by little change in diversity and sophistication of exports. Egypt's export basket is less diversified than Korea's exports, and even less than Tunisia's and Morocco's (Table 5). More importantly, the level of concentration has not decreased for several decades, while it has been slightly reduced in Tunisia and Morocco. Egypt's top 5 export items, which make up 55 percent of exports, are petroleum and related items, natural gas, iron and chemical products.

Table 5 - Export product concentration index

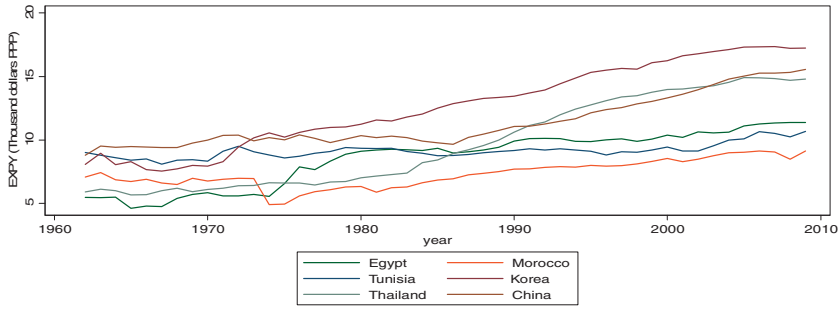
	1995-1999	2000-2004	2005-2009
Egypt, Arab Rep.	26.42	30.07	29.66
Tunisia	21.88	19.93	18.07
Morocco	18.39	17.35	15.74
South Korea	14.78	15.28	15.82
MENA simple average	46.56	48	46.72
Lower Middle Income simple average	40.26	42.46	42.49
High income OECDs simple average	12.90	14.12	14.27

Source : WDI 2010, World Bank

Figure 4 shows Egypt's export basket sophistication over time, using Hausmann's measurement for the country's export sophistication index (EXPY)[7]. The level of export sophistication has stagnated since the 1960s, except for the rapid increase in the mid-1970s and the slight rise since 2004. In contrast to Egypt, Asian countries, such as Korea, China and Thailand, rapidly increased the sophistication level of their export items over the same period. For instance, Thailand had a less sophisticated export basket than Egypt in 1960s but its current EXPY level is much higher than Egypt.

7) The level of export sophistication (EXPY) can be indirectly measured by examining the wages of those countries producing them. A product is considered more sophisticated if it is exported more intensively by high-income countries, and a product is considered less sophisticated if it is exported more intensively by low-income countries. Thus the sophistication of a country's exports is revealed by the income content of the exports. Please see more details of EXPY in Chapter I.

Figure 4- Sophistication trend



As mentioned above, the current level of export sophistication can be a good proxy for future GDP growth. The current Egyptian export basket shows that previous industrial policies failed to increase the sophistication of exports, which could lead a lower level of future growth. Chapter II of the study investigates the implications of the diversity and sophistication of exports.

Preferences for targeted industries have not improved performance - Failure of industrial policy

Galal and El-Megharbel (2005) find that total factor productivity growth from 1980-2000 in 16 industries was modest, although the results exhibit significant variations across sectors and over time (Table 6). Moreover, they conclude that indicators of industrial policies, including effective rates of protection, subsidies, and barriers to entry, are negatively related to sectoral performance, while industries that operated in less competitive markets performed worse than industries that faced greater competition. In short, the selective provision of incentives failed to improve the performance of targeted sectors.

Table 6
TFP in Manufacturing Industries in Egypt, 1980-2000

Sector	TFP Growth				
	1980/81-1994/85	1985/86-1990/91	1991/92-1995/96	1996/97-2000/01	1980/81-2000/01
Food Processing	-0.46	1.48	1.42	0.67	0.75
Spinning and Weaving	-0.04	0.96	1.72	0.59	0.81
Readymade Garments	0.67	2.16	1.89	0.59	1.33
Leather and Leather Products	1.61	-0.27	-0.90	1.32	0.44
Footwear	-1.25	0.62	2.44	0.77	0.65
Wood and Wood Products	0.46	-0.30	1.70	5.44	1.83
Furniture	1.72	0.75	-0.42	1.17	0.81
Paper and Printing	0.55	-0.30	1.11	1.06	0.61
Chermicals	0.96	5.39	-0.57	-0.24	1.39
Rubber, Plastic and Related Products	1.30	2.40	2.78	-0.65	1.47
Porcelain, China and Ceramics	0.10	2.33	3.01	-2.48	0.47
Glass Products	0.57	0.30	0.88	-0.14	0.40
Non-Metal Products	1.55	-1.56	-0.75	-0.92	-0.42
Steel, Iron and Metal Products	1.76	-1.29	0.85	0.02	0.34
Machinery and Equipement	-0.06	1.92	1.91	-1.38	0.60
Means of Transportation	1.29	0.86	-0.48	-0.-96	0.18
Mean	0.67	0.96	1.04	0.30	0.75
Standard Deviation	0.84	1.64	0.26	0.67	0.53

Source: Galal and El-Megharbel (2005)

Still large public sector – failure to provide incentives for the private sector

Over time, Egypt moved towards a more market-oriented economy. The Government implemented structural reforms, including fiscal and monetary adjustment, privatization, and reducing business regulation. However, many features of the initial industrial policies remain, particularly the preeminent role of the public sector in output and employment. Excluding agriculture, over 40 percent of the economy is owned by the public sector, with a hefty chunk controlled by the army. Like other MENA governments, after independence Egypt encouraged formal schooling by offering explicit job guarantees for high school and university graduates. Employment in the public sector doubled from 16 percent of the total in 1960 to 32 percent by 1981 (Assaad, 1997). Public employment exceeds 9 percent of the population in Egypt, about 50 percent higher than the average in the region and among countries with similar levels of income (Table 7). The numerous and secure public sector jobs reduced incentives for workers to look for jobs outside of the public sector or create their own business.

Table 7 - Total Public Employment, 1996-2000

	Egypt	MENA	Non-Gulf states	Middle income
Total Public Employment (% of population, simple average)	9.6	6.3	6.3	6.1

Source : UN Department of Economic and Social Affairs (DESA)

Ongoing efforts to shift industrial activity from the public to the private sector have achieved only partial success. Whereas in the mid-70s, the public sector dominated employment and output, by the 1990s the private sector contribution to output and the share of private value added rose to about 40 percent (Table 8). However, public sector ownership remained pervasive in capital intensive industries.

Table 8 - Distribution of some industrial indicators between private and public sectors

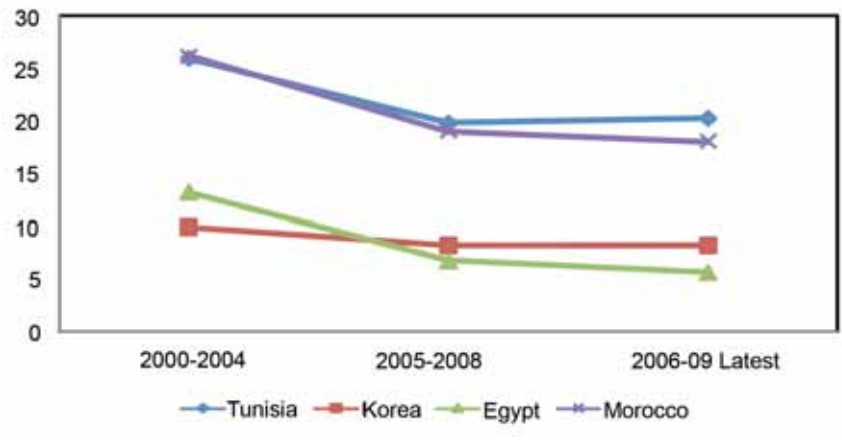
		1970-1974	1975-1991	1992-1997
No. of Firms	Public	19	16.2	12.9
	Private	81	83.8	87.1
	Total	100	100	100
Capital	Public	96.7	86.7	72.4
	Private	3.3	13.3	27.6
	Total	100	100	100
Output	Public	86.7	78.1	60.7
	Private	13.3	21.9	39.3
	Total	100	100	100
Value Added	Public	90.3	81.3	58.8
	Private	9.7	18.7	41.2
	Total	100	100	100

Source: Abdellatif (2003)

Industrial policies since 2004

A cabinet reshuffle in 2004 was followed by a reform of the trade regime. The government implemented its WTO commitments and reduced tariff rates on several imported items, including capital goods. The average weighted tariff rate fell from 21 percent in 1997 to 5.5 percent in 2009, with an average tariff rate of 5 percent on capital goods. As a result, Egypt's Trade Tariff Restrictiveness Index (which indicates the uniform tariff rate that would maintain import levels unchanged) is below the level in Morocco, Tunisia, and Korea.

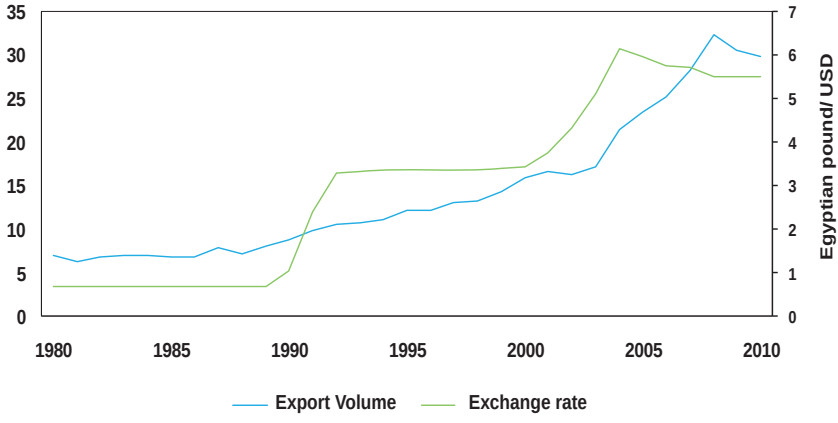
Figure 5- TTRI (MFN applied tariff)- All Goods



Source: International Trade Center, 2011

Egypt introduced a more flexible exchange rate regime in 2003 to address concerns about overvaluation and unify the foreign exchange market. The Egyptian currency depreciated about 30 percent against the dollar, which has contributed significantly to the recent export boom (Figure 6).

Figure 6 - Exchange Rate and Export Volume



Source: WEO 2010, IMF

Significant reforms have been implemented to simplify trade regulations and customs. Egypt has passed and amended over 15 legislative acts since 2004, and customs procedures and firms' registration and licensing processes have been simplified. The institutional and legislative framework for adopting technical standards has improved significantly. The national body in charge of technical standards, the Egyptian Organization for Quality (EOS), has played a major role in raising exporters' and importers' awareness of commitments under the Technical Barriers to Trade Agreement. Egypt is currently rolling out its TradeNet electronic trade document system to connect all agencies to a single electronic point of transaction.

The Ministry of Trade and Industry established the *Industrial Development Strategy* in 2005, focused on enabling the industrial sector to be the engine of growth through the expansion of exports and job opportunities. Under the IDS, the Government identified strategic sectors to promote and set up public sector institutions to strengthen domestic capabilities through i) deepening human resources and entrepreneurship, ii) implementing national innovation and quality systems, iii) providing finance, iv) building infrastructure

and v) supporting enterprise-based competitiveness programs. The IDS also aimed to deepen Egypt's integration into the global economy by promoting FDI and exports, and by enhancing social values conducive to development, while maximizing the social and environmental impact of industrialization. More detail of the strategy is given in Box 1.

BOX I - Egypt's Industrial Development Strategy, Industry: the Engine of Growth

The Ministry of Trade and Industry developed the Industrial Development Strategy in 2005, to focus on enabling the industrial sector to be the engine of growth through the expansion of exports and job opportunities. The strategy is centered around three major axes:

- Achieving higher growth in industrial production through encouraging regional and global integration through the aggressive promotion of exports and FDI inflows
- Effecting a leapfrog in industrial productivity through a carefully-designed set of policies and programs aiming at leveraging industrial competitiveness Achieving a gradual shift in the industrial structure from resource-based and low-tech activities to medium- and high-tech industries.

Targets

Indicator	2005 (Baseline)	2025 (target)
Real growth rate in industrial production (%)	3.3	9.0
Share of Industry in GDP (%)	17.1	22.6
Foreign Direct Investment (LE Bn)	7 (for 2006)	27
Nominal investment in the industrial sector (LE Bn)	12	229
Direct Jobs Created (in Thousands)	101	1911
Export Propensity (Manufactured Exports % of MVA)	19.6	40
Manufactured Exports (LE Bn)	18	291

Targeted Sectors: IDS proposes the promotion of medium and high technology activities as new industrial niches for the Egyptian manufacturing industries.

- Engineering machinery and equipment (renewable energy);
- Labour-intensive consumer electronics;
- Automotive components;
- Life sciences;
- Biotechnology; and
- Ethnic products

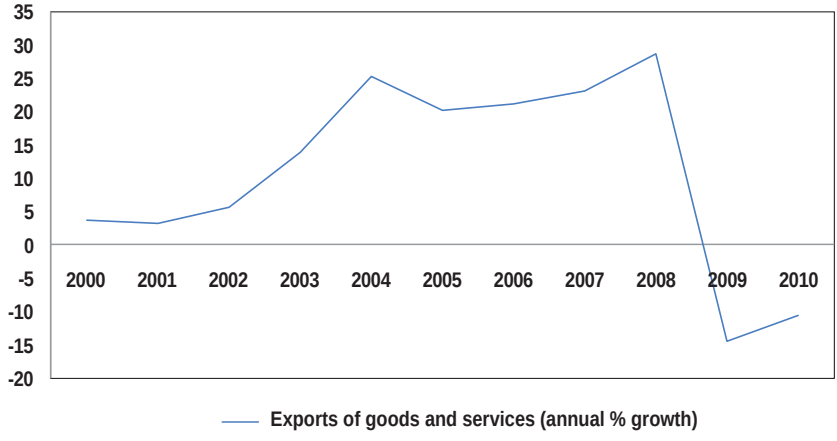
Selecting these strategic sectors does not imply discarding existing activities in the resource-based and low-technology category, but rather supporting the development of other sectors that will ensure the long-run competitiveness of the whole industrial sector.

Cf) Traditional sectors : engineering, electrical machinery, food processing, chemicals and pharmaceuticals, textiles and garments, building materials, furniture, and paper and paperboard.

Assessment of recent industrial policies

It is difficult to judge the impact of recent industrial policies on output and exports. Egyptian economic performance was severely affected by the global financial crisis of 2008-09 and the 25th of January Revolution, and several years may be required for the full effects of reform to be seen. Nevertheless, it is remarkable that export volume growth exceeded 20 percent from 2004-08 (before the financial crisis), among the highest rates in the world (Figure 7). The share of exports in GDP rose from 30 percent of GDP in 2003/04 to 57 percent in 2008/09.

Figure 7 - Exports of Goods and Services (annual % growth)



Source: WDI 2010, World Bank

Since 2004, the overall business environment has improved. The World Bank's Doing Business report has nominated Egypt three times as one of the world's top ten performers in implementing reforms concerning government regulations to attract foreign investment. For example, the number of days to register property fell from 193 days in 2008 to 72 days in 2011. However, competitiveness has not been improved over the same period, in comparison to other countries. Egypt has received a score of about 4 from the World

Economic Forum's Global Competitiveness Index from 2006-10 (Table 10)[8], although the 25th of January Revolution's impact on economy reduced the competitiveness ranking slightly in 2011.

Table 10
Global ranking, Competitiveness and business environment

Year	GCI Score	GCI Ranking	Doing Business Ranking
2006	4.1	52 (117)	165 (175)
2007	4.1	63 (125)	165 (175)
2008	4	77 (131)	126 (175)
2009	4	81 (134)	114 (175)
2010	4	79 (133)	106 (183)
2011	3.88	94 (142)	94 (183)

Source: GCI Report & Doing Business 2011, World Bank

Meanwhile, FDI inflows increased from an annual average of 0.9 percent of GDP in 2000-04 to 8.9 percent in 2006-09. The current level of Egypt's FDI is much higher than that of comparators (table 11). FDI is focusing in the dominant extraction industries (i.e., oil, gas, iron and phosphates) and related up-stream processing (e.g., petro-chemicals and chemical fertilizers). However, FDI also is increasing in manufacturing and services. Highly subsidized electricity favors investment in the energy-intensive industries, and low labor costs attract investment in labor-intensive sectors. In case of the textile industry, for example, where Chinese labor costs about $150 per month, Egyptian labor costs between $46 and $100. Moreover, the Free Trade Zones and Trade Agreements, as well as proximity to the European and Middle Eastern markets, make Egypt an attractive country from which to source manufactured exports to other countries. However, foreign investment to produce for the domestic market remains low, and has not reached the point where foreign firms re-export their productions from Egypt to other countries.

8) The Global Competitiveness Index score ranges from 1, the worst, to 6, the most competitive. The 2011–2012 Report covers 142 major and emerging economies. Switzerland received highest score, which is 5.74 while Chad received the lowest score, 2.87.

Table 11 – FDI inflows, 2006-2009 average

	Morocco	Tunisia	Egypt	Korea
FDI inflows (% of GDP)	2.74	4.62	8.87	0.24

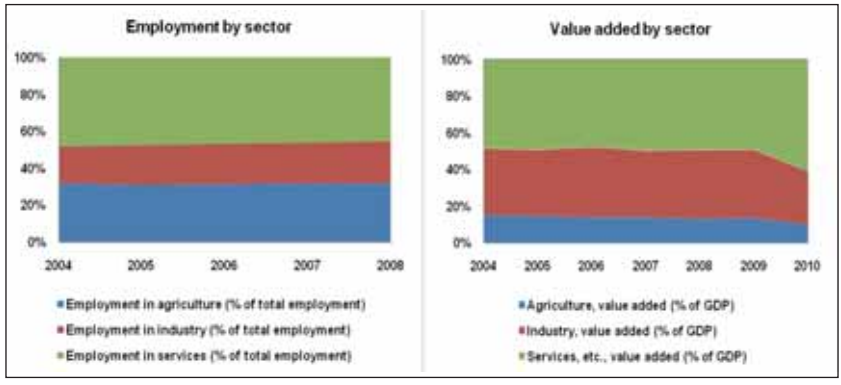
Source: WDI 2010, Word Bank

Interestingly, Egypt has recently become an important destination for investment from emerging economies, such as China and India. In 2009, China was the largest foreign investor in Egypt, with investments exceeding $500 million. In October 2010 some 22 agreements were signed between companies from Egypt and Guangdong, China, concerning investments totaling more than $250 million. The Egyptian Government actively encourages investment from China and India. Egypt has developed Free Trade Zone for Chinese investors while a FTZ for Indian investors is under consideration. More than 1000 Chinese companies are now established and incorporated in Egypt. An additional 180 Chinese companies are currently awaiting approval to participate in a designated FTZ near the Suez Canal. Investments totaling $3.5 billion are expected from the latter, alongside the creation of some 40,000 jobs.

However, less progress has been achieved in increasing the sophistication of exports. High-tech exports accounted for only 1 percent of goods exports in 2009, compared to 7.1 percent for Morocco, 6.1 percent for Tunisia and 32 percent for Korea.[9] Moreover, structural transformation, in terms of employment and value added by sector, has not been noticeable since 2004, except for the decrease in industrial sector value-added after the global financial crisis (Figure 8)

9) The measure of high-technology exports includes products with high R&D intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery.

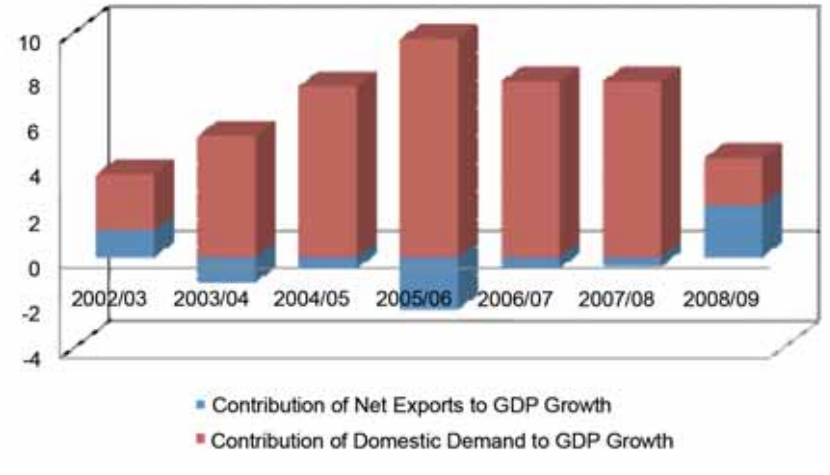
Figure 8 – Employment and Sectoral Composition Trend



Source: WDI 2010, World Bank

Exports are not a main driver of growth in Egypt. As discussed above, the correlation between export growth and GDP growth was minimal over this period. Recent output growth was mainly driven by domestic demand. Even when net exports made a significant contribution to growth (in 2008/09), it was driven by reduced import demand during the economic crisis (Figure 9).

Figure 9 - Contribution of Domestic Demand & Net Exports to GDP Growth



Source: Ministry of Economic Development, 2010

In summary, the reform program did achieve strong export growth before the financial crisis. But the lack of structural transformation may mean that growth was a one-time response to exchange rate depreciation and import liberalization, rather than a fundamental improvement in export potential.

Moreover, progress in improving the sophistication and competitiveness of the six sectors identified for support under the IDS has been uneven. The identified sectors are roughly the same as identified as “strategic bets” in Chapter 1 of this study. As discussed, this strategy emphasizes sectors that are more sophisticated and provide a larger strategic value, even if the Egyptian economy may lack many of the requisite capabilities to support those industries. This strategy involves significant risk, but, if successful, could change the productive landscape, as it did in Korea. For this strategy to succeede, concerted efforts are requried to promote the accumulation of missing capabilities and to encourage pioneers in these industries.

Table - 13 Strategic sectors identified by IDS and its matches to product communities

Strategic sectors identified by IDS	Product Communities
Engineering machinery and equipment (renewable energy)	Machinery
Automotive components	
Life sciences	Chemicals and health related products
Biotechnology	
Labour-intensive consumer electronics	Electronics
Ethnic products	N/A

Table 14 shows the strategic industries which were identified in Chapter I, based on different criteria: jobs (near the current set of productive capabilities), parsimonious transformation (country’s current set of capabilities but with a higher sophistication) and strategic bets (provide a larger strategic value but might require new capabilities).

Table 14 - Strategic sectors identified in Chapter I

	Community	% with RCA	JJJ Index	Community	% with RCA	PT Index	Community	% with RCA	SB Index
1	Cotton, rice, soy beans and others	0.56	0.27	Construction materials and equipments	0.45	0.36	Machinery	0.06	0.21
2	Garments	0.36	0.27	Garments	0.36	0.38	Chemicals and health related products	0.06	0.34
3	Food Processing	0.58	0.29	Food Processing	0.58	0.40	Misc. Chemicals	0.42	0.40
4	Construction materials and equipment	0.45	0.31	Machinery	0.06	0.40	Electronics	0.04	0.42
5	Misc Agriculture	0.55	0.32	Misc. Chemicals	0.42	0.42	Construction materials and equipment	0.45	0.43
6	Tobacco	0.17	0.34	Cotton, rice, soy beans and others	0.56	0.44	Meat and eggs	0.04	0.48
7	Fruit	0.75	0.34	Textile & Fabrics	0.41	0.44	Pulp and paper	0.18	0.50
8	Fish & Seafood	0.09	0.34	Misc Agriculture	0.55	0.45	Home and office products	0.17	0.51
9	Leather	0.29	0.34	Fish & Seafood	0.09	0.45	Garments	0.36	0.51
10	Textile & Fabrics	0.41	0.37	Leather	0.29	0.46	Textile & Fabrics	0.41	0.54

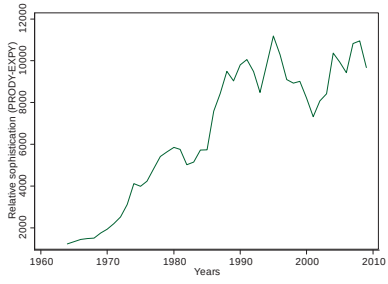
Figure 10 shows the performances of the strategic industries which were idenfied in the Industrial Development Strategy (IDS). The left-hand graphs show the sophistication relative to the current export basket. Since 2005, relative sophisitcation improved in most of the identified sectors. For instance, in the life science and biology sector, sophistication has gradually improved and reached a peak last year. However, in engineering machinery and equipment, the current level of sophsitication is about the same as in the 1990s. The sophistication of labor-intensive consumer electronics recently fell below the level of the middle of the last decade.

The right-hand graphs show the percentage of products inside each product community in which the revealed comparative advantage index (RCA) is less than one (see Chapter 1). The idea is to give a sense of how many products are produced with high competitiveness. In most sectors, the products with a RCA greater then one is just 6 percent of the total, meaning that the sectors are much below their potential.

Figure 10 – sophistication and competitiveness trends in strategic sectors

Engineering machinery and equipment (renewable energy)

A



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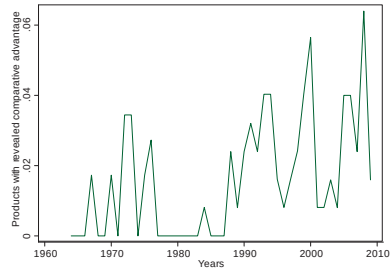
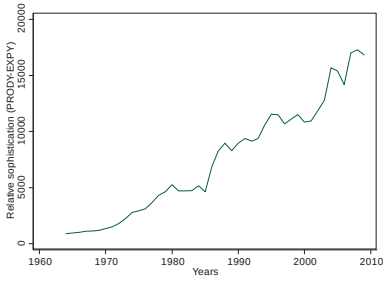


Life sciences / Biotechnology

A



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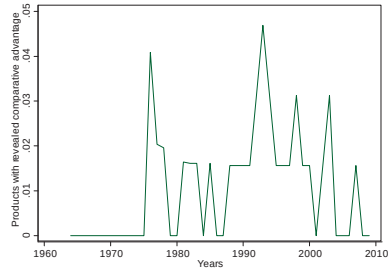
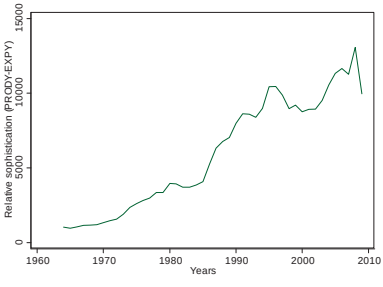


Labour-intensive consumer electronics;

A



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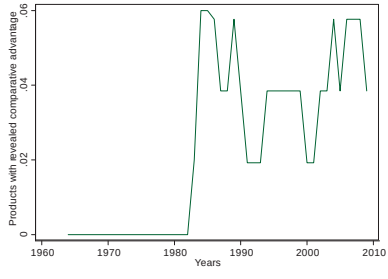


Source: Authors calculations

Key actors and institutional elements of Egypt's industrial policies

In line with the active industrial policies since the 1950s, Egypt has numerous governmental and non-governmental agencies working on export issues. Here is a short summary of the key stakeholders.

Support institutions in the Government

Top-level political commitment: Political commitment has supported and strengthened institutional co-ordination mechanisms. Ministerial committees, like *the Ministerial Economic Policies Committee,* have been formed to co-ordinate trade policy formulation, while others co-ordinate implementation by area of trade. However, it is not clear that co-ordination mechanisms are functioning well, especially since the Revolution.

Ministry of Trade and Industry (MTI): MTI monitors the legal and regulatory framework to promote trade and investment, including export and investment laws, public private partnership laws, the capital market law, and the export promotion law. MTI also provides various services, such as trader registration and licensing, training, and supervising economic zones.

- *Egyptian Export Development Strategy:* In 2000, MTI developed the Export Development Strategy and identified export promotion as its priority. Under this strategy, new laws were established to promote export competitiveness and improve the coordination among ministries. Also, several entities were established to tackle specific barriers in trade, promote industrial transformation, and increase exports.

The Ministry of Finance (MOF): The MOF oversees overall macroeconomic policies in order to increase Egypt's competitiveness in international markets. At the micro-level, MOF is also directly engaged in supporting SMEs and preparing the framework for PPPs.

- *Support for SMEs:* MOF developed a strategy to promote SMEs in 2004 and offered special tax treatment to SMEs, financed through the Social Development Fund. SMEs account for more than 80 percent of employment in the non-agricultural private sector.

- *Support for Public Private Partnership (PPP):* MOF adopted a new policy of pursuing partnerships with the private sector to increase infrastructure investments. The GOE has taken the initiative to introduce a PPP program through the establishment of the PPP Central Unit within the Ministry of Finance.:

The General Authority for Investment and Free Zones (GAFI): GAFI is the principal governmental authority concerned with regulating and facilitating investment. While it largely focuses on helping to establish new business, it indirectly promotes exports through various channels. Its functions include developing Industrial Zones, promoting Egypt's potential sectors, attracting new investments and promoting re-investments and expansions, and providing services to investors through expanding GAFI's "One Stop Shop". Prior to the 25th of January Revolution, GAFI was under the Ministry of Investment. The Ministry has been abolished since the Revolution, and GAFI is currently supervised by the Deputy Prime Minister. However, this change has not had much impact on GAFI's role in promoting exports.

Export promotion agencies

Several government agencies support exporters in marketing, training, funding and market research. However, there are too many agencies playing similar roles, and not all agencies are cost effective. Lederman, Olarrega and Pyto (2009) found that export promotion can have a positive impact on export growth, although the impact increases with income per capita. Exports of goods and services per capita in Egypt are much lower than in countries with a similar level of per capita expenditures on export promotion. Some of the export promotion agencies are listed in Box I.

Box II. Export promotion agency

- The Egyptian Export Promotion Center (EEPC): The EPPC is a national export promotion agency that provides services for exporters ranging from marketing to funding. It also oversees the export councils and commodity councils.
- Export Councils: Export Councils are in charge of achieving the Ministry's export targets. The Board Members identify and discuss problems in each sector and make recommendations to MTI. In 2005, MTI appointed a core group of 10 to 12 leading manufacturers per sectors and exporters.
- The Industrial Modernization Centre (IMC): Jointly funded by the EU, the Government and the private sector, the IMC's Export Development Program provides support to exporters in organizing and participating in international exhibitions. The program is non-discriminatory for manufacturing sectors. For the services sector, only ICD and industry related services (e.g. transport) are covered at the moment.
- The Industrial Development Authority (IDS): IDS was established in 2005, to maximize the contribution of Egyptian industry and to develop manufacturing strategies. IDS's activities include studying the legislation connected with industry and drawing up industrial development studies.
- Egyptian Commercial Service (ECS): Under MTI, the ECS support exporters in obtaining business intelligence and organizing trade fairs through its offices around world.
- Foreign Trade Training Center (FTTC): The FTTC is an independent not-for-profit training institute established under the MTI.
- Federations of Industries and Business Associations: Federations of Industry oversee the operations and jointly tackle the barriers facing each industrial sector. Sixteen Industrial Chambers represent the most active sectors within the business C\community, and 10 commodity councils operate in different sectors.
- The Egyptian Bank for Exports Development: The Bank was established in 1983 to provide trade finance to exporters, including short and medium term loans and guarantees. It currently offers six financing programs. For instance, its Agriculture Sector Development Program provides export loans of up to EGP 5 million to agricultural companies. However, its current functions are more like other commercial banks, rather than EXIM banks in other countries.
- The Egyptian Export Fund: The Export Fund was established under the Ministry of Finance to prove financial support to exporters. However its budget was reduced last May, when the Government cut the deficit target.

Free Zones

Egypt has established Free Zones since the 1970s to increase exports, attract foreign investment, introduce advanced technology, and create more job opportunities. Free Zones are considered offshore areas, and firms in Free Zones can be exempted from custom duties, sales taxes, or other taxes. Trade from free zones has increased over time (Table 13). Currently, investors operating inside the Free Zones export more than 50 percent of their production. In 2007/08 Free Zones accounted for 20.3 percent of Egypt's total exports, and FDI in free zones represented 9.5 percent of Egypt's total FDI, with nearly 136,000 employed.

Table 13 – trade performance in free zones, 1997-2007

Year	Export	Import	Trade Balance
1997	481	1039	-558
1998	617	1029	-412
1999	505	884	-379
2000	600	853	-253
2001	947	1355	-408
2002	1228	1205	23
2003	1486	1322	164
2004	2308	2040	268
2005	3530	3160	370
2006	4167	3505	662
2007	5240	4839	401

Source: CAMPAS 2011

Free Zones reduced related red tape and simplified administrative procedures. Some Free Zones offer complete exemption from private and corporate income taxes; financial incentives also take the form of low land rental and utilities rates. However, the incentives offered by Egyptian Free Zones have not been as diverse as in other countries. For instance, in Morocco and Tunisia, the free zones offer relaxed labor market regulations, while techno pole in Tunis provides training through collaboration with a local university.

Recently there has been a trend to move away from traditional free zones, which tended to focus on importing goods and re-exporting to other destinations, to special economic zones or industrial zones, which provide diverse services to upgrade the industrial structure and boost exports. Since 2007, Egypt has focused on industrial zones and investment zones, which depend more on facilitating administrative procedures and quality infrastructure (Box III).

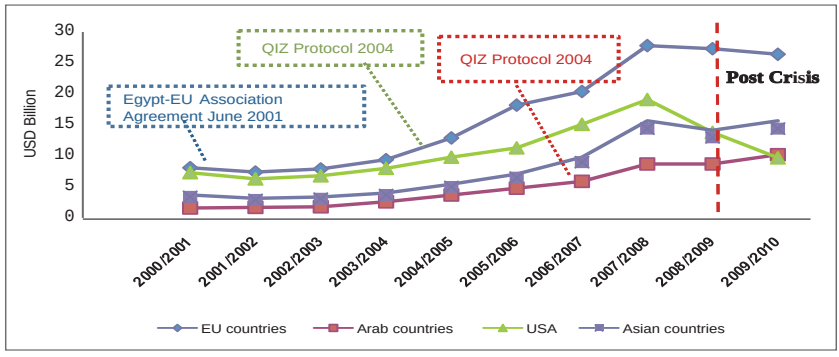
Box III. New generation of Free Zones

- Industrial Zones: IZs are targeted at specific economic activities, say media or textiles, with infrastructure adapted accordingly. In 2006, the Government restructured its IZ Development Program to assign long term land development, management, and operation rights to private sector entities within PPP arrangements. In 2008, the first private industrial zones were established. Currently, there are 21 industrial zones in the new cities, and 75 industrial zones in the existing governorates.
- Investment Zones: Investment zones were created in 2007 under Law no.19, which allowed the establishment of investment zones as per a Prime Ministerial decree.
- Qualifying Industrial Zones (QIZ): QIZs allow duty-free access between Egypt, Israel, and the United States. There is no quota in U.S. markets on goods manufactured in the QIZs, no restrictions on project ownership, and no time limits or renewal requirements. Also, imported materials are not subject to customs duties.

Trade Agreements and Trade Partners

Egypt has signed 8 trade agreements and 69 Bilateral Investment Treaties. The trade agreements greatly contributed to the recent increase in trade. For instance, trade with EU increased to 26.4 percent of Egypt's total trade in 2009/10 from 7.4 percent 2001/02 when the Egypt-EU association agreement was signed. Also, Arab countries represented a 10.2 percent share of Egypt's total trade in 2009/10, up from 5.9 percent in 2005, when the GAFTA agreement was ratified (Figure 10).

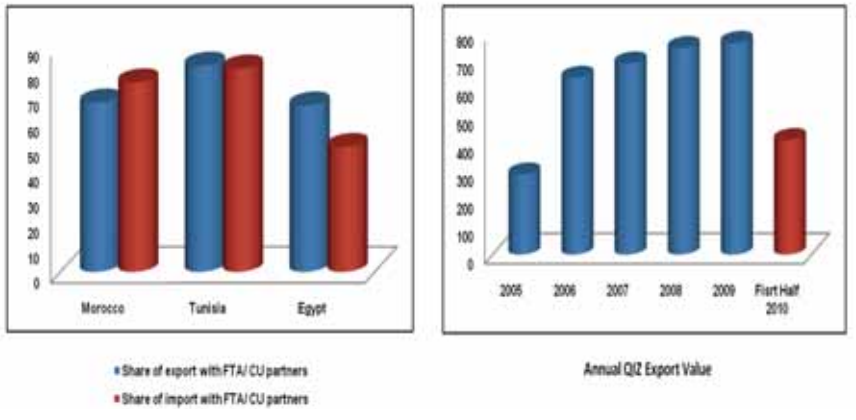
Figure 10 – Export trend and FTA



Source: DOT 2010, IMF

However, Egypt's share of trade with partners with trade agreements is still less than those of Morocco and Tunisia (Figure 11). This might be because Egypt's trade partners are more diversified than Morocco and Tunisia. But this might also imply that there is more room to improve trade with partners with trade agreements such as Free Trade Agreement (FTA) and Custom Union (CU).

Figure 11- Trade with FTA/CU Partners (2005-09 average)



Source: Ministry of Trade and Industry

Despite the high number of trade agreements, the outcome of each trade agreement varies a lot and not every trade agreement is fully utilized. One of the good examples is the Qualifying Industrial Zones (QIZs), allowing Egyptian goods to enter the US duty-free. In 2005, the QIZs started operating with 397 qualified companies in 7 designated industrial locations. The QIZs have rapidly expanded to encompass over 15 industrial zones with around 700 qualified companies, amounting to more than $1 billion in annual revenues. As a result, there has been a more than tenfold jump in Egyptian textiles and ready-made garments exports to the United States in the first four years of operation (Figure 12)

In contrast to QIZs, there has been no increase in trade under the Agadir Declaration, which established a free-trade zone between Egypt, Jordan, Tunisia and Morocco. Though the customs agreement was fully enacted in 2007, the trade volumes among Agadir countries are insignificant. One of the issues raised by an exporter was that there is no direct shipment among Agadir countries, so transportation costs are higher than in trading with European countries, a view confirmed by PÉIDY (2007). Thus it is important for Egypt to provide the trade facilitation measures needed to benefit from trade agreements.

BOX IV - Egypt's Trade Agreements.

- Egypt-EU partnership: EU opened their markets to Egyptian manufactured goods, while Egypt is phasing in access for similar European products. Each party enjoys Most Favored Nation status from the other for trade in services. The agreement specifies the creation of a free trade area over 12 years.

- Egypt-EFTA Partnership: EFTA (Iceland, Liechtenstein, Norway and Switzerland)-Egypt Free Trade Agreement covers trade in industrial products and basic agricultural products. By 2020, customs duties on all industrial products will be eliminated.

- Qualifying Industrial Zones (QIZ): QIZs allows duty-free access to the United States.

- Agadir: A free-trade zone between Egypt, Jordan, Tunisia and Morocco offers member states tariff- and quota-free access, as well as a rules-of-origin advantage. The customs agreement was fully enacted in 2006 and 2007.

- Greater Arab Free Trade Agreement (GAFTA): GAFTA has been ratified by 22 Arab nations for the phasing out of customs and duties, and the elimination of all non-tariff barriers including administrative, financial and technical barriers.

- Common Market for Eastern and Southern Africa (COMESA): COMESA is a full free-trade area among its 19 member states, providing Egypt with duty-free access to a market of more than 400 million consumers.

- Egypt-MERCOSUR Agreement: Signed in August 2010, this agreement aims to establish clear, predictable and lasting rules to promote the development of reciprocal trade and investments with Latin American countries.

- Egypt has also signed a Free Trade Agreement with Turkey as well as 69 Bilateral Investment Treaties (BITs), agreements between two countries for the reciprocal encouragement, promotion and protection of investments in each other's territories by companies based in either country.

Thanks to these many trade agreements; Egypt has more diversified trade partners compared to neighboring countries. The EU has about 30 percent and the United States 10 percent of Egyptian exports. Other trade partners include South East Asian and Arab countries. Egypt's export market also has become more diversified over time (Table 14). Egypt's main export regions are EU, Arab and Asian countries. At a country level, Italy, the United States, Spain, Syria and Saudi Arabia are the largest export markets, with around 35 percent of total exports. Since 2006, exports to Arab, European and Asian countries have increased by 2-4 times, while exports to NAFTA countries have stagnated.

Table 14 - Export Market Concentration Index

	1995-1999	2000-2004	2005-2009
Egypt, Arab Rep.	24.19	23.75	18.93
Tunisia	38.48	41.03	36.55
Morocco	35.93	39.33	31.04
South Korea	26.77	29.14	26.27
MENA simple average	37.09	35.21	35.05
Lower Middle Income simple average	44.87	44.14	39.42
OECDs simple average	32.43	31.97	28.06

Source: UCTAD 2011

However, trade with neighboring countries is limited. Intra-regional trade in North Africa is less than 2 percent of foreign trade, the lowest ratio in the world, despite the existence of the trade agreement in the region. As mentioned above, one of the reasons why intra-regional trade is so low in North Africa is due to the high cost of trade among these countries. Therefore, increasing intra-regional trade requires more than reducing tariffs; it also requires trade logistics and coordination.

Intra-regional trade could create important benefits for North African countries. Free trade among Maghreb countries could result in a

gain in regional trade flows of over $1billion (Eizenstat and Hufbauer, 2008). Also, intra-regional trade will give the countries greater weight in commercial and political negotiations with international partners. Moreover, weak regional integration prevents countries from integrating into global production chains because regional barriers to trade limit the scope for cross-border movement and two-way trade in parts and components. The location decisions of multinationals are crucially affected by the scope for sourcing inputs and moving them quickly and freely across national boundaries (Brenton, Baroncelli and Malouche, 2006).

Constraints to increasing export sophistication

Sustained growth, of the type of Asian coutrnies have managed to generate, requires something more than macroeconomic stability and openness. It requires active policies that promote economic diversification and foster structural change from low-productivity activities to mostly tradeable higher-productivity activities.

Recent research finds that there is indeed unconditional convergence in individual manufacturing industries, meaning that industries that start at lower levels of labor productivity experience more rapid growth in labor productivity, regardless of domestic policies or institutions. Even within manufacturing some of the “escalators” move up more quickly than others. The trick is to get a toehold in automatic-convergence industries and to expand domestic employment in them (Rodrik, 2011).

Rodrik argues that developing countries can reap productivity gains by supporting industries that benefit from unconditional convergence. While the Egyptian government has identified sectors that are quite similar to those selected by Rodrik as likely to enjoy rapid productivity gains (almost identical to the sectors identified by Hausmann as “strategic bets”), these gains have not been evident in Egypt over the past few decades. An important question is why there has not been sufficient growth in sectors that have enjoyed rapid productivity gains in other countries? What should the government do to foster greater growth in productivity?

To encourage private sector activities in automatic-convergence industries, Government policies should focus on supporting activities which have a clear potential for providing technology spill-overs within these sectors. The Government should play a catalytic role to prevent coordination failures, in order to encourage firms to undertake actions they otherwise would omit due to the prohibitive cost, rather than providing preferential treatment which artificially raises the industry competitiveness. Also, the Government should focus on labor productivity, rather than providing capital accumulations in specific industries. The government also should not reduce the private sector competitiveness with existing red-tape and corruption. Moreover, the energy subsidy should be diminished or better targetted to better allocate resources in strategic industries.

A comprehensive approach is needed.

The Government can play a catalytic role to reduce coordination failures, in order to encourage firms to undertake actions they otherwise would omit due to the prohibitive cost. However, supporting exports should be approached holistically. This issue is more complex than just signing a trade agreement or establishing an export promotion agency. Export-led growth should be prioritized as a national strategy and should be supported by various complementary activities. Macroeconomic stability, trade finance, R&D investment and trade logistics are only some of the examples.

The key is to build institutional capacity to monitor export activities, identify the constraints, and effectively solve the problems. As discussed in the previous section, although there are numerous government entities and export promotion agencies, the coordination among government agencies and between the public and private sector is weak. Moreover, the government consultations with the private sector are needed to better target its efforts in the area of trade policy.

In the case of South Korea, the Government identified export-led growth as the national priority and held a monthly Economic Committee meeting, chaired by the President. The Committee invited not only high-ranking Government officials, but also owners of private companies. During the Committee meetings, the Government reviewed the firms' monthly export target, jointly identified the constraints to exports, and if the target was not met, attempted to solve the constraint jointly with line ministries. This works like the human body's nerve system, which gives us a signal of sickness when our body goes wrong, so that we can solve the problem. What is missing in Egypt is the coordinating mechanism among institutions that would play the role of a nerve system.

Moreover, the principles underlyiing Egypt's selection of industries to promote has differed greatly from those in South Korea. Korea's industrial policies aimed to create new industries such as automobiles, electronics, and steel that were subject to considerable economies of scale. By contrast, Egypt protected industries and products that were already produced locally. Korea created its comparative advantage while Egypt is reinforcing the exiting one. Moreover, in Korea, the provision of incentives was based on an open competion, while the performance of subsidized firms in meeting export targets was continously monitored by the highest level of Government. Export targeting arrangements were specified in detaill by issuing licenses to individual companies allowing them to produce particular products, conditional on the compnay achieving specified export targets. This system helped to ensure that subsidies were allocated to firms that could contribute to Korea's development.

Labor productivity should be improved

One of the reasons that Egypain exports are below potential is low growth in labor productivity, which results in low TFP growth. Abdellatif (2003) demonstrate that TFP growth was poor from 1980-2000, and the major driver of growth during the open-door period (when manufacturing achieved rapid growth) was capital accumulation. Kheir-El-Din and Moursi (2001) confirm that capital

accumulation was the main driving force of growth during 1960-89. Egyptian industry was characterized by low levels of qualified workers, while restrictive labor laws made it almost impossible to fire unproductive workers. Thus previous growth driven by capital accumulation, wihtout acocmpanied by productivity growth.

Reliance on capital accumulation to spur growth in Egypt is not a sustainable strategy. Hevia and Loayza (2011) illustrate that in the absence of improvements in productivity (through technological innovation, improved public management, and private-sector reforms), rapid growth would require a highly unrealistic incresae in national savings. Thus skilled labor shortages represent a binding constraint on economic growth in Egypt. The above-mentioned QIZs provide an example of how low labor productivity limits export success, as shown in a recent workshop (box IV).

Egypt needs to develop suitable educational and training programs to improve labor productivity. One practical approach is to offer vocational training for different groups of employees, including managerial level, middle managerial level and unskilled labor, and including informal sector workers (informal sector employment is 55 percent of non-agricultural employment). In addition, reforms to improve labor market flexibility are essential. The competitiveness of Egypt's labor market is a real concern in Egypt, which ranked last among a survey of 134 countries in the Global Competitiveness Report 2009.

Transparency and accountability need to be enhanced

Trancparency & accountability have worsened since 2000, as measured by Word Govenance Indicators has worsened since 2000, as measured by World Governance Indicators (Table 15). Public procurement rules are often opaque. The 25th of January Revolution provides a golden opportunity for Egypt to tackle this issue.

Table 15 - World Governance Indicators

	1995-1999	2000-2004	2005-2008	2006-09 Latest
Government Effectiveness	-0.33	-0.33	-0.45	-0.37
Regulatory Quality	-0.02	-0.45	-0.35	-0.17
Rule of Law	0.03	-0.01	-0.08	-0.09
Control of Corruption	-0.09	-0.41	-0.55	-0.67
Political Stability / Absence of Terrorism	-0.60	-0.65	-0.77	-0.67

Source: World Governance Indicator 2011

In 2009 Egypt was ranked 111 out of 180 countries, as measured by the Corruption Perceptions Index. Private firms are strangled with corruption, which hampers economic development. The percentage of firms identifying corruption as a major constraint was 45.2 percent, compared to 27 percent in Morocco and 8.5 percent in Korea (Table 16).

Table 16- Enterprise Survey

	Egypt	All countries
% of Firms Expected to Pay Informal Payment to Public Officials	15.23	27.5
% of Firms Expected to Give Gifts to Get an Operating License	13.45	15.56
% of Firms Expected to Give Gifts In Meetings With Tax Officials	5.28	16.51
% of Firms Expected to Give Gifts to Secure a Government Contract	32.04	25.26
% of Firms Identifying Corruption as a Major Constraint	45.2	36.25

Source: Enterprise Survey, World Bank 2008

Transparency and accountability is particularly low in tax and customs administration. A variety of factors contribute to corruption

there, including the complexity of laws and procedures, and the level of control and discretion granted to officials.

In 2004, the new cabinet announced reforms in the tax and customs systems. In an effort to enhance transparency, the Ministry of Finance, the Egyptian tax authorities and the customs authority introduced simplified procedures and reduced personal contact between public officials and taxpayers. Efforts were also undertaken to improve the training of officials. Nevertheless, the government carried out no systematic review of integrity in either the tax or customs departments (OECD). According to the Doing Business Report 2009, bribery within the Egyptian customs authorities is still extremely widespread, particularly in lengthy import and export procedures.

The strong ties between the state and the private sector impede efficient industrial policies. In particular, the protection of industry and targeting has been misused in Egypt. While protection in Egypt was formally uniform, in reality producers with access to political power and/or connections often had preferential access to incentives (El-Haddad, 2008). Thus targeted sectors often became even less efficient due to the lack of international competition and the support of the wrong players, in marked contrast to the experience of targeted support to boost exports in South Korea.

The South Korean Government also adopted e-government to simplify tax and customs administration and reduce corruption, which resulted in a great success. This is discussed in Chapter III on South Korea's experience.

The energy subsidy should be removed or at least better targeted

Despite the fiscal reforms implemented since 2004, subsidies still remain large. In fiscal year 2011/12, subsidies, including food and fuel, are expected to account for LE 133 billion of government spending, or about 10 percent of GDP, resulting in a serious fiscal

problem (the deficit target for 2011/12 is 8.6 percent of GDP). Addressing subsidies, in particular energy subsidies, will create fiscal space, improve social justice (since the benefits from subsidies are mostly captured by the well-off), and provide incentives for more rational use of the country's natural resources.

Moreover, energy subsidies distort resource allocation. Valdés and Foster (2011) demonstrate that although trade liberalization since the late-1990s has reduced protection of some industries, some sectors, such as the food and tobacco sector, remain relatively highly protected, due to tariff and nontariff barriers, and energy subsidies. Energy subsidies are not formally sector specific but do favor sectors that are energy intensive.

In Egypt, energy pricing is part of a strategy to promote certain industries by offsetting the implicit taxation that results from tariffs on intermediate inputs. For instance, in the cement sector, energy subsidies appear to almost exactly offset the negative impact of tariffs and indirect taxes. The fertilizer sector has zero nominal tariffs, benefiting agriculture, and thus a negative effective rate of protection due to tariffs on intermediate inputs. However, the fertilizer sector ends up with a very positive total effective rate of protection due to energy subsidies. Therefore, gradually reducing subsidies or better targeting the beneficiaries will improve the efficiency of resource allocation, which could improve the overall industrial sector competitiveness and channel resources to industries which are more strategic industries for economic growth (those industries which were identified as strategic bets in chapter I).

Box V. Lessons from the ready-made garment industry

Despite the impressive success of the ready-made garment industry in QIZs, the sector growth rate has decreased rapidly over time, due to the low labor productivity growth. There is demand for skilled labor, but there is a failure to supply education and training. A recent workshop drew the following lessons:

In order to address the productivity challenges in labor market

- Identify how top management can better organize and run their factories
- This focus should be at all levels, but particularly mid-level skills; mid-level management, industrial engineers, line supervisor, work-planners; and top management
- Short-term training should focus on technical issues, including operator skills, engineering, production management, and quality control systems.
- Medium-term training should be in the areas of basic education (literacy, numeracy, critical thinking) and soft skills (personnel management, motivation, health& nutrition)

In order to attract a reliable workforce

- Improve the compensation package
- Shift from the production of low-value clothing to high-value design production

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3. How to move up to higher export growth in Morocco

After independence in 1956, Morocco adopted a restrictive import-substitution industrial strategy in order to foster industrial development and generate substantial transfers to national producers. By the early 1980s these policies led to a deteriorating macroeconomic environment, with rising inflation, budget deficits, and external debt. The government responded with policies to restore macroeconomic stability, open the economy, and promote exports.

Nevertheless, rapid export growth has remained elusive. Morocco's exports have increased at just above 6 percent per year since the mid-1990s (Table 1), a slightly higher rate than the MENA average but well below that of Egypt and the successful East Asian exporters. Over the past decade, Morocco's share of world exports has stagnated at about 0.12 percent, and its trade deficit has widened steadily (Table 2).

Table 1 -Real growth in total exports (goods and services, %)

	1995-1999	2000-2004	2005-2009
Morocco	5.94	6.85	6.19
Tunisia	3.96	4.18	4.63
Egypt, Arab Rep.	3.53	10.38	17.42
MENA simple average	5.45	5.44	6.58

Source : WDI 2011, World Bank.

Table 2-Trade Balance as % of GDP, 2005-2010

	2000	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*
Morocco	-8.7	-8.0	-7.6	-8.7	-11.4	-13.8	-15.0	-22.0	-21.9	-18.1	-21.4
Tunisia	-11.6	-12.8	-9.2	-8.3	-7.8	-6.1	-7.3	-7.4	-8.9	-8.5	-10.9
Egypt	-11.7	-10.4	-8.5	-8.0	-9.9	-11.6	-11.2	-12.5	-14.4	-13.3	-11.5

Source: WDI 2011, World Bank

Despite some increase from the 1990s, Morocco's exports still equal about 35 percent of GDP (Table 3), well below levels in Tunisia and South Korea (the relatively high ratio in MENA is due to the very large export revenues in the major oil exporters). Also, Tunisia and Egypt, Morocco's main regional competitors, have achieved a higher level of sophistication and diversification of their export products (Hausmann 2011).

Table 3 - Export as % of GDP

	1995-1999	2000-2004	2005-2009
Morocco	26.76	29.17	35.51
Tunisia	42.84	45.70	57.50
Egypt	18.57	21.98	33.71
S. Korea	34.47	37.02	44.74
MENA	30.21	35.64	49.45

Source: WDI 2011, World Bank

Despite the geographic position of Morocco, the conclusion of free trade agreements (FTAs), improvements in the quality of infrastructure, and efforts to promote exports, the quality and quantity of exports remain below government expectations. This chapter aims to understand why Morocco has not fully achieved its trade potential. In order to identify constraints to improving Morocco's exports, the success of the previous Government's policies to promote exports is analyzed and the institutions created to support exports are reviewed. The chapter concludes with a discussion of the major constraints on Moroccan exports, including human capital, the business environment, the quality of logistics, and policies that discriminate against exports.

Industrial policy: Historical Background

Activist industrial policy (1956-1980)

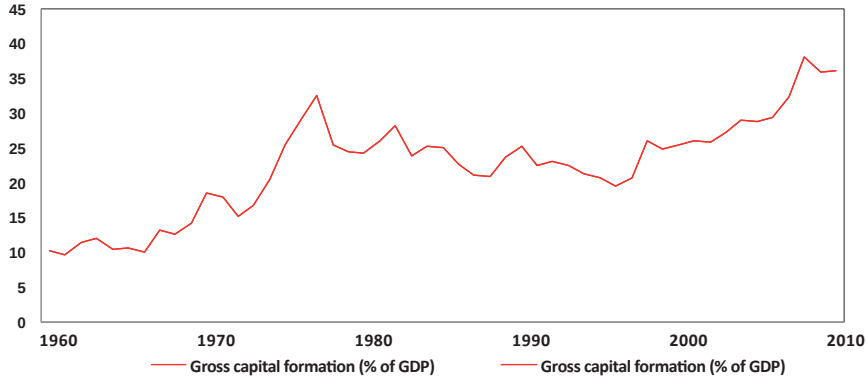
Since its independence in 1956, the government has intervened in favor of specific private entrepreneurs, firms, industries and regions. In the 1960s and 1970s, the government adopted an import substitution strategy, which accorded investment incentives and tariff protection to key sectors. Government ownership of most financial institutions facilitated the allocation of subsidized credits and loans[10] to selected sectors, including manufacturing, tourism, housing, and agriculture. The agricultural sector was the highest priority for government support.[11] The process of "*Marocanisation*" (the transfer of ownership of firms from foreigners to nationals), which was completed by 1975, resulted in the nationalization of a important number of existing firms, while the government also created state enterprises in new sectors, such as automobiles and chemicals.

10) Refers to loans with a long credit repayment period, and fixed interest rate, with 60-70 percent of investment financed through governmental loans.
11) As reported in the second economic development plan adopted in 1965.

Evolution of industrial strategies and the changing pattern of State intervention	
1959-1980	■ Import-substitution industrial strategy through means such as according investment incentives and custom protection for industrial goods and services. ■ Credit policy: benefits to private investors in selected sectors of the economy, including manufacturing, tourism, agriculture, housing. ■ «Marocanisation» process: transfer of ownership from foreigners to nationals. ■ Diversification strategy: creation of new firms in several sectors of the economy (chemical industry; motor vehicle industry).
1981-2005	■ Structural Adjustment Policies (ERSAP): Open market and export oriented system to achieve macroeconomic stabilization and higher growth rates. ■ Trade liberalization ■ Privatization ■ Sectoral policies, ranging from agriculture, manufacturing to services (especially tourism and textile industry)
2006-up to now	■ «Emergence» Program: export-led growth strategy based on: (1) clusters creation and (2) industry modernization process.

These policies led to a sharp rise in investment (particularly public investment) as a share of GDP in the late 1960s and 1970s (figure 1). They also resulted in a rise in external debt to 69 percent of GDP, in the current account deficit to 12 percent of GDP, and in inflation to 12.5 percent (table 4), which prompted the government to embark in 1983 on an Economic Reform Structural Adjustment Program (ERSAP).

Figure 1 - Investment as % of GDP, 1960- 1980



Source: Word Development Indicators 2011, World Bank

Table 4 - Selected Macroeconomic indicators 1975- 1981

	1975	1976	1977	1978	1979	1980	1981
GDP growth (annual %)	7.6	10.8	6.1	2.2	4.8	3.6	-2.8
External debt stocks as % of GDP	29.6	35.1	50.8	52.3	51.6	51.7	69.2
Current account balance (% of GDP)	-5.6	-14.3	-16.5	-9.9	-9.4	-7.5	-12.0
Inflation, consumer prices (annual %)	7.9	8.5	12.6	9.7	8.3	9.4	12.5

Source: WDI 2011, World Bank

The opening of the economy in the 1980's

The ESRAP was intended to restore macroeconomic stability and promote export-led growth. Restrictive fiscal and monetary policies led to a sharp fall in inflation (to below 2 percent), a sharp reduction in the fiscal deficit from 11.6 percent of GDP in the 1980s to 3.8 percent in 2003, and a significant surplus in the balance of payments (due mainly to tourism and transfers of Moroccans residing abroad). In 1993 the government initiated a privatization of public enterprises that through 2003 covered 66 (out of 113 planned) entities, and abolished price controls and marketing monopolies for almost all goods and services except certain transport (rail transport, port and

airport services etc.) and crude phosphates. The trade regime was liberalized in 1996 through the replacement of quantitative import restrictions with tariffs on the majority of products. Steps were taken to promote private sector investment (especially for export production) through fiscal, customs, and financial incentives; the adoption of a new Investment act in 1995 (see below) and the establishment of free trade zones.

The government also continued to pursue selective industrial policies. The Hassan II Fund for Economic and Social Development was set up in 2000 to provide financial assistance (30 percent of the cost of professional buildings and 10 per cent of the cost of capital goods) to investment projects in four specific industrial sectors. Other instruments were used to support various sectors, in particular the textile and clothing industry, which is the country's largest export industry and biggest employer. The National Agency for SME promotion launched several programs including "Mossanada[12]", "Imtiaz" and "programme de mise à niveau", to support small and medium-sized enterprises and help upgrade their managerial, technological and organizational infrastructure.

The Emergence Plan, announced in November 25 2005, is an integral part of the Government's economic development program. The Plan is a target-oriented industrial strategy designed to raise GDP by 91 billion MAD and create up to 220,000 jobs. This 7-year strategy (2009-2015) is expected to reduce the trade deficit by 50 percent and increase GDP growth by 1.6 percentage points per year. While supporting Morocco's traditional textile and agro-business sectors (which account for 50 percent of industrial value added), the new plan focuses mainly on new growth motors, especially high value added industries.

The Emergence Plan has essentially three goals: (i) attracting foreign investment; (ii) developing more sophisticated and competitive products in emerging sectors; and (iii) reorienting key manufacturing exports toward markets with potential for expansion. The Plan

12) Arab word which means support

proposes an export-led industrial strategy based on two pillars: (1) the active targeting of six growth engines that should constitute the future world-class jobs in Morocco (Off shoring, Automobile, Aerospace, Electronics, Textile, and Food); and (2) an industry modernization process, through programs such as “Mossanada” (support), “Imtiaz” (Excellence) and an up-grading program.

The Emergence Plan is a national pact for industrial emergence involving the commitment of public and private actors. The public institutions involved in this new strategy are the Ministry of Justice, Ministry of the Interior, Ministry of Economic and Finance, Ministry of Agriculture, Ministry of Education, Ministry of Employment and Vocational program, Ministry of Industry, Trade and ICT, and Ministry of Foreign Trade. The professional group of banks of Morocco and the General Confederation of Moroccan Enterprises represent the private sector

Assessment of the industrial policies

Industrialization strategy - difficulty to emerge from an agricultural economy

Morocco’s industrial policies aimed to promote industry, from the import substitution in the 1960’s to exporting industries in 1980’s and after that to sectoral policies in 2000’s. Laabas (2009) found that most Arab countries follow a primary production led industrialization strategy. He noted that only Jordan, Lebanon, Morocco and Tunisia are considered to have a manufacturing based industrialization.

Over the period 1990-2010, industry’s contribution to GDP has stagnated, while the share of industry in total employment decreased from 36.4 per cent in 1990 to 21.7 percent in 2008 (Figure 2). This implies that the growth of productivity per employee has increased. In terms of trade, manufacturing exports represented 65.5 percent in 2010 compared to 23.5 percent in 1980. However, during the period of 1990-2010, the manufacturing export has relatively stagnated (Table 5).

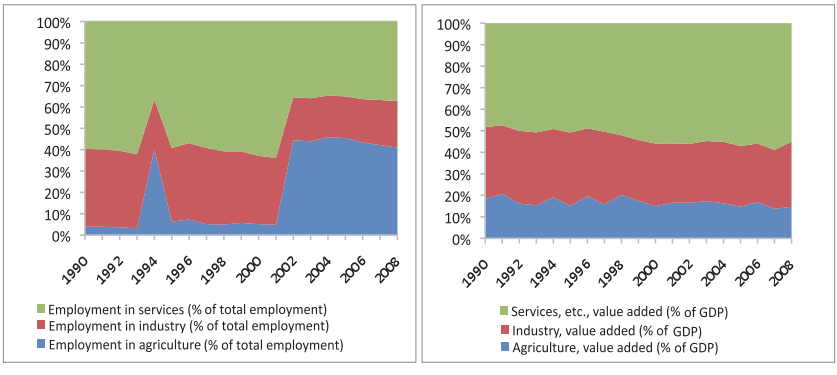
Table 5 - Manufacturing export % of total export, 1970-2010

	Manufactures exports (% of goods exports)				
Country\Year	1970	1980	1990	2000	2010
Morocco	9.68	23.51	52.25	64.09	65.45
Tunisia	19.11	35.72	69.11	77.00	75.37
Egypt	27.12	10.95	42.47	38.43	36.65
Korea	76.53	89.55	93.52	90.75	89.59
Lower middle income	16.98	22.76	43.99	51.56	48.35

Source: WDI 2011, World Bank

The progress of structural transformation was relatively slow. The size of agricultural sector has not changed much relative to output. For the period 1980-2009, the average agriculture contribution to GDP was 16.7 percent, much higher than Tunisia, where agriculture contribution to GDP was 7.8 % over the same period. However, the agriculture's share of employment has strongly increased; in 2008 more than 40 percent of employees worked in the agricultural sector. This implies that the growth of productivity per employee has been lower in agriculture than in other sectors.

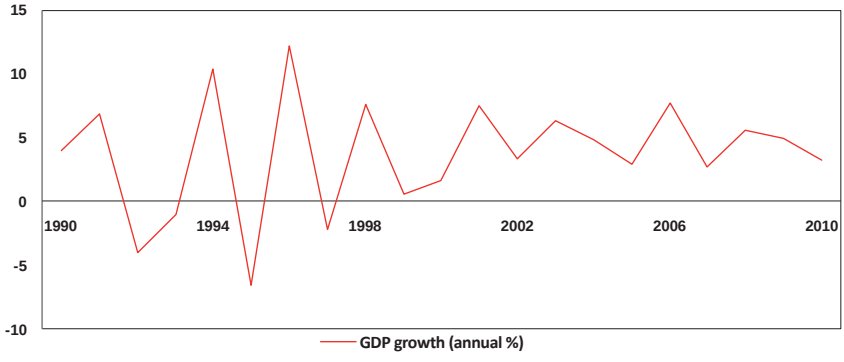
Figure 2 - Economic Structural Changes in Morocco, 1990-2008



Source: WDI, World Bank 2001

The annual economic growth rate of about 4.8%, recorded over the last five years is volatile and strongly dependent on meteorological conditions (Figure 3). Indeed, climatic factors have had a major impact on the performance of the strategic agricultural sector and consequently on the country's economic growth rate trends, partly because of the fragile nature of cereals which constitute the main crop in Moroccan agriculture. Over the 1990's, droughts have become a recurrent phenomenon in Morocco. While this impact has been relatively mitigated over the last five years, meteorological conditions still remains a crucial factor in the country economic development. For example, and despite the 2008/2009 financial crisis, the economic growth rate decreased only from 5.6 percent to 4.9 percent thanks to the significant rainfalls in the country in 2009, meaning that agricultural sector still play an important role in the Morocco's economic development.

Figure 3 - Trend of GDP growth rate, 1990-2010



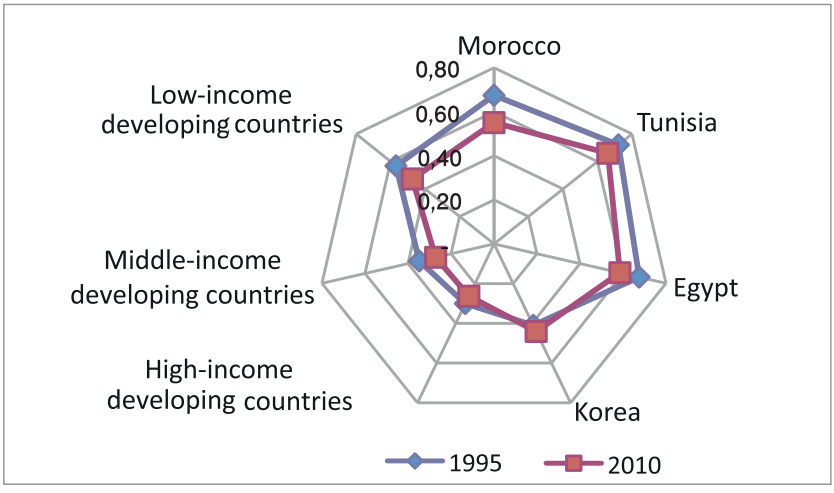
Source: WDI 2011, World Bank

Lagging diversity and sophistication – failure to reach higher and sustainable growth rates

The results of ESRAP have not been fully satisfactory. Until the beginning of the 2000's, economic growth was led by domestic demand than exports. The limited growth and small size of Morocco's exports are described in the introduction. Morocco's

exports are highly concentrated (Figure 4) in sectors (e.g. agriculture, phosphate and tourism) that are subject to major price and volume fluctuations. Moreover, the concentration in traditional products limits the potential for knowledge spillovers that can be generated in more sophisticated sectors. The industrial policies have not completely succeeded in transforming the supply structures and placing the Moroccan economy on the new path to growth in which the non agricultural sector and technology-intensive exports play a more central role.

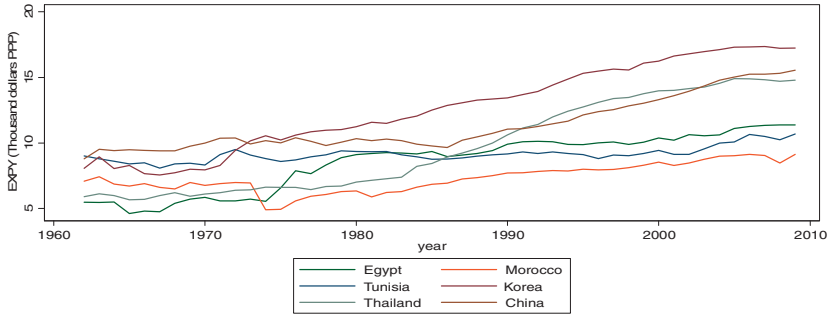
Figure 4
Herfindahl Index of Diversification of Exports 1995 and 2010



Source: UNCTAD, 2011

Morocco is perceived as a low-cost platform for products destined for European companies. It is clear that this positioning will need to be changed towards the production of more sophisticated products. While Morocco has achieved some increase in the sophistication of exports since 1960 (Figure 5), structural shortcomings are hampering export growth and preventing Morocco from exploiting its comparative advantages.

Figure 5 - Export sophistication Index (EXPY), 1960-2010.



Source: Hausmann (2011)

In contrast to Morocco, Asian countries, such as Korea, China and Thailand, rapidly increased the sophistication level of their export items over the same period. For instance, Thailand and Egypt had a less sophisticated export basket than Morocco in 1960s but its current EXPY level is much higher than Morocco.

In order to achieve sustained development, Morocco needs to increase its exports and change the structure of its economy. The current level of export sophistication may determine future growth (Hausmann 2011), thus Morocco needs to act now to improve export sophistication to achieve more rapid growth over the next decade.

Emergence plan - A plan to provide larger strategic value

Table 5 - Hausmann's Strategies for Morocco

Jobs			Parsimonious Transformation			Strategic Bets		
	Community	% with RCA	JJJ Index	Community	% with RCA	PT Index	Community	% with RCA	SB Index
1	Garments	0.74	0.23	Garments	0.74	0.37	Machinery	0.02	0.22
2	Fish & Seafood	0.73	0.28	Construction materials and equipment	0.09	0.39	Chemicals and health related products	0.00	0.33
3	Tobacco	0.00	0.34	Food Processing	0.38	0.42	Misc. Chemicals	0.00	0.38
4	Food Processing	0.38	0.34	Machinery	0.02	0.42	Electronics	0.06	0.40
5	Leather	0.36	0.35	Fish & Seafood	0.73	0.44	Construction materials and equipment	0.09	0.40
6	Misc Agriculture	0.45	0.36	Textile & Fabrics	0.28	0.44	Home and office products	0.13	0.47
7	Textile & Fabrics	0.28	0.37	Misc. Chemicals	0.00	0.46	Pulp and paper	0.09	0.48
8	Cotton, rice, soy beans and others	0.11	0.37	Misc Agriculture	0.45	0.46	Meat and eggs	0.04	0.48
9	Construction materials and equipment	0.09	0.37	Leather	0.36	0.47	Petrochemicals	0.00	0.50
10	Animal Fibers	0.00	0.40	Animal Fibers	0.00	0.47	Food Processing	0.38	0.52

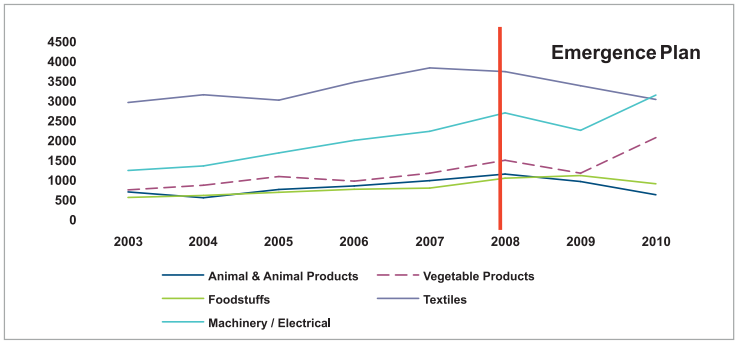
Table 5 shows the strategic industries which were identified in Chapter I, based on different criteria: jobs (near the current set of productive capabilities), parsimonious transformation (country's current set of capabilities but with a higher sophistication) and strategic bets (provide a larger strategic value but might be a new capabilities).

Table 6
Recent industrial strategy: Emergence plan 2009-2015

Objective for the period 2009-2015	Targeted Sectors	Product Communities
Create sustainable industrial employment and decrease urban unemployment;	Automobile	Machinery
Increase industrial contribution to GDP;	Aerospace	Aircraft
Reduce Trade deficit;	Electronics	Electronics
Support industrial investment both national and foreigner.	Textile	Textile & Fabrics/Garments/ Leather
	Food industry	Food Processing/ Meat and eggs/ Milk & cheese

Table 6 relates the strategic sectors identified by the Emergence Plan and the product communities introduced in Chapter 1. The sectors selected in the Emergence Plan are close to the ones identified by Hausmann as "strategic bets", that is, sectors that are more sophisticated and provide a larger strategic value. This strategy is riskier than focusing on sectors that are closer to the country's current production, but if successful, could change the productive landscape, as in Korea. To promote this strategy, concerted efforts are requried to coordinate the accumulation of the missing capabilities and to encourage pioneers in these industries.

Figure 6 - Evolution of export products within each selected sector of the Emergence Plan



Source : International Trade Center 2011.
Note: value exports in million USD

It is clearly too early to evaluate the impact of the Emergence Plan. However, one positive sign is that machinery and electronics exports increased after the 2008-09 financial crisis (Figure 6); in 2010 exports of machinery and electronics overtook textiles as the second largest export sector, accounting for 18 percent of total exports.

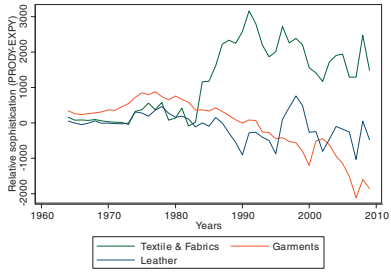
Figure 6 shows the performances of three of the strategic industries which were idenfied in the Emergence Plan. The left-hand graphs show the sophistication relative to the current export basket. Since 1990's, relative sophisitcation improved in most of the identified sectors. For instance, in the Machinery and electronics sector, sophistication has gradually improved and reached a peak in 2009. However, in garment and leather industries, the current level of sophsitication strongly decresed since 1990.

The right-hand graphs show the percentage of products inside each product community in which the revealed comparative advantage index (RCA) is less than one (see Chapter 1). The idea is to give a sense of how many products are produced with high competitiveness. Morocco has a presence in the Textile & Fabrics and Leather product communities and Machinery and Electronics products communities below 40 percent, which suggest that there is some room for developing these products.

Figure 7 - Sophistication and competitiveness trends in strategic sectors

Textile and Leather

A



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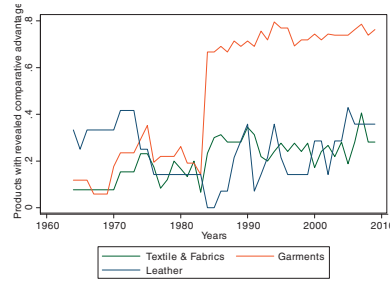
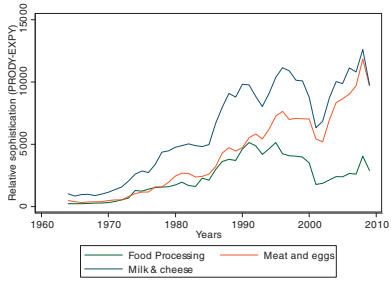


Agro-food

A



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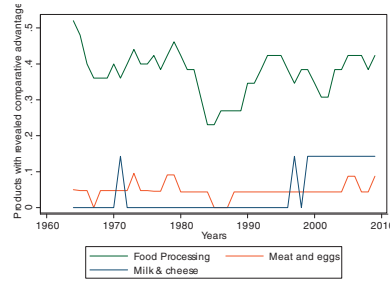
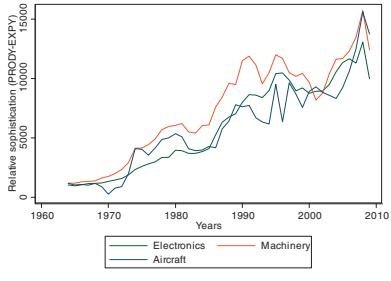


Machinery and Electronics

A



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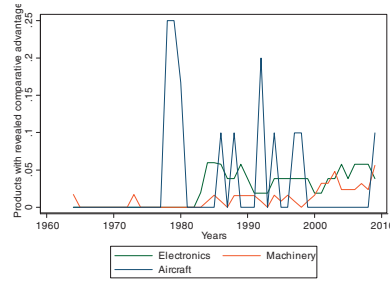


Source : Authors' calculations

The main actors and institutional elements of Morocco's industrial policies

To carry out its export promotion strategy, the government has created institutions to support trade, improved the necessary infrastructure for firm activity (in particular exporting firms), and concluded FTAs with its main trading partners.

Support institutions

The Government has accompanied its opening to the global economy by creating institutions to help emerging exporters overcome information and other market failures that impede entry into new markets. Moroccan authorities have played a useful role in helping domestic producers to raise their exports and improve the quality of their products, to better cope with the increased competition from global markets. Here is a short summary of the key stakeholders.

Export Promotion Center: Maroc Export

Created in 1976, *Maroc Export* Center supports SMEs in the export of industrial, artisanal and food products by providing business information and organizing promotional activities and meetings with potential trade partners. With a wide range of services and an international professional network, *Maroc Export* aims to enhance the position of Moroccan products in international markets. Maroc Export subsidizes the participation of groups created under the program of export consortia, by providing grants of up to 85 percent of the cost of participation in international fairs and exhibitions.

Maroc Export works closely with the national Foreign Trade Council (CNCE), the Moroccan Company of Credit Export Insurance (SMAEX), and the Moroccan Association of Exporters (ASMEX). The center is under the supervision of the Ministry of Foreign Trade.

National Agency for SMEs Promotion (ANPME)

Since its creation in 2002, the National Agency for Promotion of SMEs (ANPME) has been at the heart of Moroccan business

support. Its main missions are to: (i) raise the competitiveness level of SMEs through various support programs (*Imtiaz* and *Moussanda*), and (ii) contribute to improving the general environment of SMEs. The agency hosts the Project Management Unit of the Industrial Modernization Program financed by the European Union. Since the creation of export consortia, the ANPME provides technical support to groups of companies wishing to establish and / or develop an export consortium[13], covering the costs of expertise needed to carry out targeted consulting actions, promotion and technical assistance.

Box I. The UNIDO export consortia program: the case of Morocco

Since 2004, UNIDO has been supporting the Moroccan Ministry of Foreign Trade and the Moroccan Exporters Association (ASMEX) in establishing an export consortia initiative with funding by the Italian Development Cooperation. Important results have been obtained thanks to the efforts undertaken to create a national incentive framework for export consortia

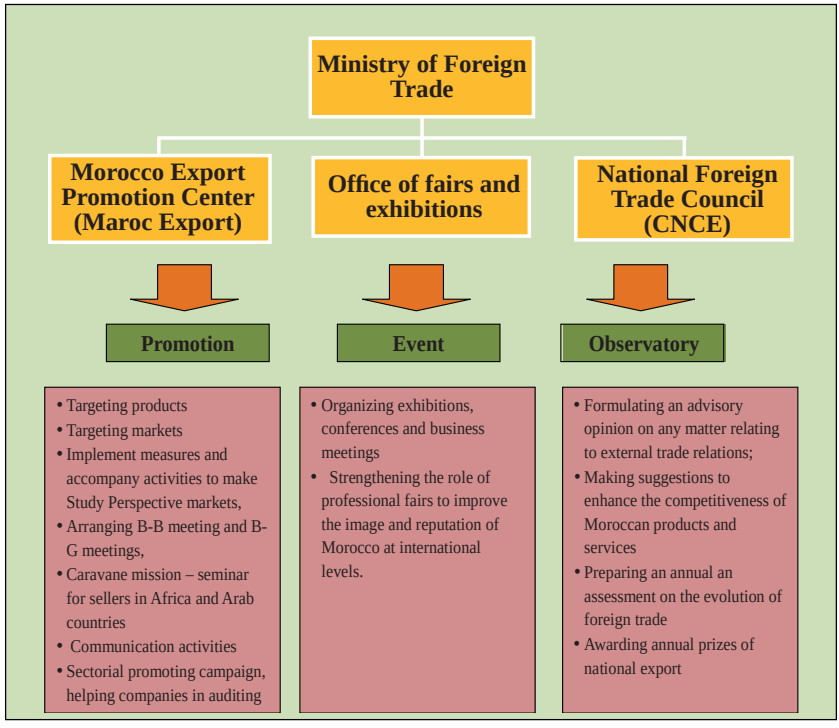
Both public and private players are strongly committed to ensure the sustainability of the export consortia initiative after UNIDO project's completion: the Ministry of Foreign Trade is dedicated to improving the legal and incentive framework for export consortia and the Moroccan consortia have established an association following the example of the Italian Federation of Export Consortia (Federexport).

The export consortia project in Morocco was assessed in 2008 by an independent evaluation. The project was considered to be extremely relevant to Morocco's national priorities, as underlined by an active public private partnership throughout its implementation. In Morocco, export consortia are now viewed as an effective tool for boosting SME's exports and promoting enterprise upgrading, with member companies recording benefits in both areas.

Source: OECD

13) A voluntary alliance of firms with the objective of promoting the export of goods and services through joint actions.

Figure 8 - Mission and functions of the agencies under supervision of the Ministry of Foreign Trade



Source: Authors

Since independence Government has involved numerous governmental and non-governmental actors in developing the export sector, and has spent a large portion of the budget on these agencies. Thus it is important to evaluate the impact of these agencies on export growth. Lederman, Olarrega and Pyto (2006) found that export promotion can have a positive impact on the export growth, but that results have been disappointing in MENA region. They estimate that one dollar invested in export promotion can yield up to $227 in exports in Asia and $137 in Sub-Saharan Africa, but only $96 in MENA. The Tunisian Export Market Access Fund (FAMEX) was estimated to generate only $20 of additional exports.

Box II. Export promotion agencies

- Moroccan Company of Credit Export Insurance (SMAEX): SMAEX is a public-private company created in 1989 as one of the main instruments of the Moroccan export promotion strategy. SMAEX provides credit insurance, which protect exporters against the risk of non-payment, and public export insurance, which provides guarantees against political risks, catastrophic and non-transfer.

- National Foreign Trade Council (CNCE): The CNCE was established in 1996 to implement synergies between public and private sectors. Its main functions are: (i) providing advice on matters relating to external trade; (ii) making suggestions to enhance the competitiveness of Moroccan exports; (iii) publishing an assessment of the evolution of foreign trade; and (iv) awarding annual prizes (export trophies) to the most deserving exporters in view of their business performance in foreign markets.

- General Confederation of Moroccan Enterprises (CGEM): Created in 1947, the CGEM is a private association of Moroccan entrepreneurs. More than 95 percent of its members are small enterprises. The CGEM aims to rule on various perspectives of SMEs development in various sectors, including incentives for the creation of SMEs export consortia.

- Moroccan Association of Exporters (ASMEX): The Moroccan Association of Exporters is a private association created in 1982 of individuals and firms involved in exporting. The ASMEX works to amplify the voice of the private sector on international trade issues.

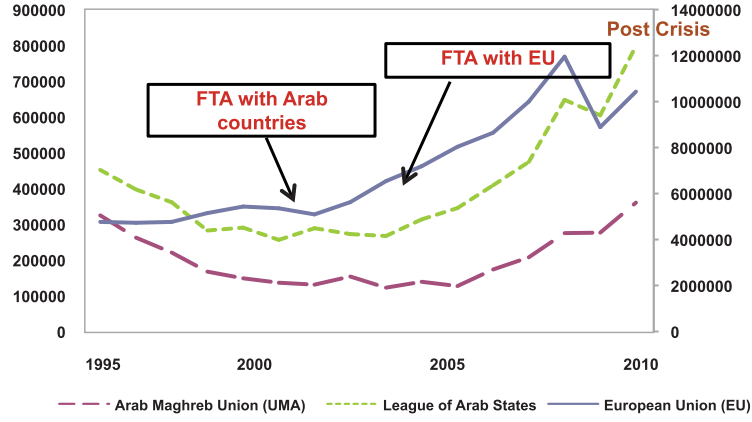
Trade agreements

Since the 1980's, Morocco has formally signed a number of integration agreements. The Greater Arab Free Trade Area (GAFTA) was concluded with the 22 Arab League members in 1981, and has been effective since 1998. Morocco also has concluded bilateral FTAs with some of its GAFTA partners, notably Jordan, Egypt and Tunisia in 1999. Morocco is a member of the Arab Maghreb Union (AMU) with Algeria, Mauritania, Libya and Tunisia, and the European Union has provided institutional and financial support to economic cooperation among these countries.

The signing of the Euro-Med Agreement with European Union and its implementation in 2000 imparted a powerful momentum to Moroccan exports (Figure 8). Morocco now exports more than 60 percent of its total exports to Europe, especially to Western Europe countries.

Morocco signed a FTA with the United State and a bilateral FTA with Turkey in 2004. The US-Morocco FTA is expected to give increased export opportunities to Moroccan producers in the agriculture and services, while the Turkey-Morocco FTA should enable Moroccan firms to use Turkish textiles in clothing production, without losing preferential access to the EU Market. FTAs with the United States and with Turkey have rebalanced the Euro-Med Agreement signed earlier which does not cover agricultural and services products (see Appendix 1, Table 1)

Figure 9 - Morocco's Trade in per cent of GDP, 1980-2010



Source: UNCTAD 2011

By concluding preferential trade agreements with bilateral and regional trading partners, Morocco has increased its trade (imports plus exports) from an average of 57 percent of GDP in 1990's to 70 percent in 2000's. Also, FTAs have been an important argument to attract foreign direct investment. The Moroccan Investment Development Agency points to free trade access to the one billion consumers of Morocco's trade partners as the third top reason to invest in Morocco.

Unfortunately, the exclusion of agriculture and services sectors in most of the PTAs and FTAs limits their benefits. The government needs to include services (55 percent of GDP) into current and future trade agreements.

Economic infrastructure

Industrial parks- Key element for sectoral policies

In the industrial economic literature, the development of industrial zones is considered an instrument of great importance in economic and industrial planning. Towards the end of the 1970s, Morocco launched a program to develop industrial zones. However, owing to

structural changes that affected the economy at the beginning of the 1980s which involved the implementation of ERSAP, the program did not really achieve its objective. With the Emergence Plan, the government has developed industrial parks, technoparks and free trade zones to serve both domestic and foreign investors.

Morocco has about 70 industrial zones, of which roughly half are operational, two operational free trade zones, and seven technoparks. Created in 2001, the Casablanca technopark is the first Moroccan industrial park specialized in ICT. Other technoparks are still under construction and some of them are not totally operational, so an assessment of their performance would be premature.

Figure 10 - Technoparks and Ports in Morocco

Source: Authors

Attract more FDI in industry

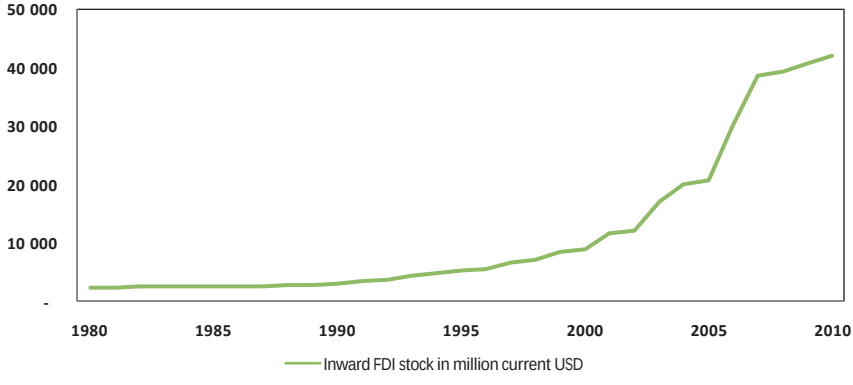
The government has taken several steps to attract foreign investment. The new investment Figureer introduced in 1995 gives foreigners the right to invest in Morocco without prior authorization and the right to transfer profits and repatriate capital without limits on the

amount or duration. In the context of the privatization program, full foreign ownership of Moroccan companies was allowed in certain sectors (especially manufacturing).

Measures have been taken to improve the legal environment and the so-called "Welcoming Services" for foreigners. In 2007 the government adopted a series of measures and legal provisions to simplify procedures and secure appropriate conditions for investment. The Moroccan Investment and Development Agency (MIDA) were created in 2009 to oversee the promotion of investment. MIDA is a financially autonomous public institution which provides guidance for investors. Combined with actions carried out by the Hassan II Fund[14] for development, these measures have contributed to the rapid increase in foreign investments in Morocco (Figure 10).

As noted above, the FTAs concluded by Morocco have had a positive impact on FDI inflows. Morocco is considered as a springboard for foreign investors to re-export to Europe and MENA region. The French car factory Renault in Tanger aims to produce 500 000 cars/ year by 2015 and export 90 percent of the total production to more than 52 countries which have concluded FTAs with Morocco.

Figure 11: Foreign Direct Investment, stock of net inflows 1980-2010



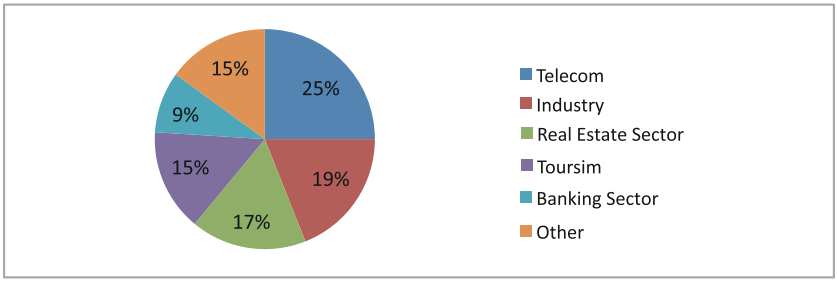
Source: UNCTAD 2011

14) Created in 2007, Hassan II Fund for Economic and Social Development allocates US 12.9Mn to development projects

Over the period of the 1980-2010, Morocco was one of the most important recipients of FDI inflows in the MENA region. However, more than 25 percent of Moroccan FDI was in telecommunications, owing to the sale of mobile licenses and the opening of Maroc Telecom to foreign investors since 1999. Overall, FDI remains concentrated in services, including tourism, telecommunications and banking (Figure 11).

More efforts need to be made to attract FDI into the industrial sector, especially in high value added industries. To this end, the government of Morocco is developing the infrastructure needed for sophisticated industries, such as technoparks and adapted industrial zones. More than 13 percent of the Emergence Plan budget has been dedicated to develop infrastructure.

Figure 12- FDI inflows by Sector, 2000-2010



Source: Moroccan Investment Development Agency (MIDA)

Constraints and policy recommendations

The industrial sector competitiveness of Morocco is undermined by a series of constraints at different levels, namely: the structural environment and production costs. The structural environment is characterized by low domestic demand, unwieldy and complex administrative procedures and formalities, and a very cumbersome tax system. Production costs are characterized by: the non-optimal logistical means of reaching Europe, very high energy costs, and limited or tariff-controlled access to raw materials.

Vigorous efforts are required to address constraints to export production. The East Asian experience highlights the importance of investing in human capital, creating a supportive business environment, maintaining a competitive exchange rate, and building the institutions to support exports as critical to success.

Limited human capital

Despite initiatives to improve human capital, a shortage of skilled workers remains an important constraint on development. Only 11.8 percent of the population has completed tertiary education, well below levels in Egypt and Tunisia (Table 7). Moreover, according to an enterprise survey conducted by the World Bank in 2007, 31 percent of Moroccan firms have identified labor skills as one of their major constraints. This situation is a major constraint that makes it difficult to attract the skill-intensive and technology-intensive activities that abound in the world economy.

Moreover, the current workforce is not adequate to meet the needs of the strategic sectors identified under the new industrial policy. The government is establishing training institutes for each industry identified under the Emergence Plan, and more than a third of the Emergence Plan budget is dedicated to training and vocational programs.

*Table 7 - Education in Morocco, 2006-2008**

Variable Name	Morocco	Tunisia	Egypt
Primary School ratio	106.9	107.6	99.7
Pupil / Teacher	26.5	18.2	27.1
Secondary School ratio	55.8	90.2	86.2
Pupil / Teacher	18.7	15.9	16.6
Tertiary School ratio **	11.8	32.4	28.7

Sources: ADB Statistics Department; UNESCO Institute for Statistics (UIS) Database, February 2010; Various Domestic Authorities.
*Notes: * Latest available data, ** 2006-2008*

Business regulations need to be simplified

While Morocco is perceived as a low cost platform for goods destined for European companies, its workforce is relatively expensive. According to the recent report on wages (2010-2011) of the International Labour Organisation (ILO), the minimum wage in Morocco is the highest in Africa, 2,110 MAD per month (210 EUR) or 10.64 MAD per hour. Morocco cannot compete successfully in the production of labor intensive manufactures when Tunisia, for example, offers a cheaper workforce with a higher skill level.

Enabling people to do business was one of the main contributions to Asian economic success (H. Ben Hammouda, 2004). Despite government efforts to establish a healthy business environment, high tax rates increase the cost of doing business, while Morocco is ranked well below Tunisia and Egypt in the ease of doing business, with particularly bad rankings for the difficulties involved in starting a business and registering property, and for the protections accorded investors (Table 8). According to the enterprise survey conducted by the World Bank in 2007, more than 55 percent of Moroccan firms identified tax rates as a major constraint. Morocco also ranks below regional comparators in the environment for cross-border trade, particularly in the time and documents required to import (Table 9). The government needs to ease regulations that increase labor costs while supporting production in more sophisticated industries. Several tax relief policies have been launched to enable the country to take advantage of the new investment opportunities. However, Morocco needs to continue with these reforms to encourage the emergence of an enabling business environment.

Table 8 - Ease of Doing Business Rank, 2011

Variable Name	Morocco	Tunisia	Egypt	Korea, Rep
Ease of Doing Business Rank	114	55	94	16
Starting a Business	82	48	18	60
Dealing with Construction Permits	98	106	154	22
Registering Property	124	64	93	74
Getting Credit	89	89	72	15
Protecting Investors	154	74	74	74
Paying Taxes	124	58	136	49
Enforcing Contracts	106	78	143	5
Closing a Business	59	37	131	13
Trading Across Borders	80	30	21	8

Source : Doing Business 2011, World Bank

Table 9 - Trading Across Borders – Doing Business, 2006-2009 (Latest)

Variable Name	Morocco	Tunisia	Egypt	Korea, Rep.
Trading Across Borders Rank	80	30	21	8
Documents to export (number)	7	4	6	3
Time to export (days)	14	13	12	8
Cost to export (US$ per container)	700	773	613	790
Documents to import (number)	10	7	6	3
Time to import (days)	17	17	12	7
Cost to import (US$ per container)	1000	858	698	790

Source: World Trade Indicators 2011, World Bank

Import restrictions impart a strong anti-export bias

Morocco's restrictive trade regime undercuts efforts at export promotion. Complex import restrictions can negatively affect the volume of exports: the higher the domestic market protection is, the stronger the anti-export bias (Walkenhorst & Malouche, 2006). In Morocco, imports are particularly essential in the industrial sector, where large amounts of semi-finished products are imported and later re-exported after processing. More than 85 percent of exporting firms use imported materials (Enterprises Survey-World Bank, 2007). Reductions in tariff rates would enhance the effectiveness of the government's trade promotion policies and foster restructuring in value-subtracting firms.

The anti-export bias has been exacerbated by adverse exchange rate movements. The strong link of the dirham to the euro when the euro was strengthening against the dollar resulted in an appreciation of the real exchange relative to some competitor countries whose currencies were floating (e.g. Tunisia) or more closely linked to dollar (e.g. Egypt, Turkey, China). From 2000, when the euro was created to 2007, the year before the financial crisis, the correlation between the dirham/dollar exchange rate and Morocco's export volumes was significantly negative (-.86). Inflexible labor markets make it even more difficult to manage a fixed exchange rate system, by removing one means of possible adjustment to losses in competitiveness.

Logistics quality and transport cost - constraints and challenges

Morocco is establishing itself as a regional transport logistics hub. Therefore, the quality of transport and trade logistics constitutes a central element of Morocco's competitiveness. Supported by geographical proximity to Europe, Morocco has successfully responded to the increasing demands of its trading partners in terms of timing, reliability and quality of deliveries. The government has made a substantial effort to improve the quality of trade logistics

and especially of sea transport, in order to increase its exports and take full advantage of its geographical position.

More than 98 percent of Morocco's external trade relies on shipping. Building the Tanger-Med Port was thus a critical step to improving export performance. Beginning operations in 2007, Tanger's port handled 2.1 million containers in 2010 and 2.6 million containers in 2011. In 2013, it is forecast to handle 3.5 million containers and become the biggest port in Africa in terms of trans-shipment. With a coastline over 3,000 km line, Morocco has eleven other cargo ports: Nador, Kenitra-mehdia, Mohammedia, Casablanca, Jorf-lasfar, Safi, Agadir, Tan-tan, Laayoune and Dakhla. The Kingdom also has a highly-developed highway network that connects all cities exceeding 400,000 residents.

Morocco signed an open skies agreement with the EU in late 2006 that has thrown the air transport market wide open. Logistical support for airfreight is also being improved, while the state aviation authority is preparing to transform into a commercially viable entity as it considers partnerships with the private sector to manage certain platforms at particular airports.

Despite improvements in the quality of trade logistics, the poor performance of some logistics chains, procedural complexity and poor information management continue to result in delays between entry and exit of imported goods in the Moroccan ports. Also, port charges and handling costs in Morocco's main port are very high compared with other Mediterranean ports. According to the World Trade Indicators report 2009/2010, Morocco's scores in terms of infrastructure quality and transport costs are well below Tunisia's scores and the MENA average (Table 10).

Table 10 - Logistic Performance Index (Low= 1; high= 5), 2006-2009 (Latest)

Variable Name	Morocco	Tunisia	Egypt	Korea,
Overall	2.38	2.84	2.61	3.64
Efficiency of customs and other border procedures	2.20	2.43	2.11	3.33
Quality of transport and IT infrastructures	2.33	2.56	2.22	3.62
International transport costs	2.75	3.36	2.56	3.47
Logistics competence	2.13	2.36	2.87	3.64
Trackability of shipments	2.00	2.56	2.56	3.83
Domestic transportation costs	2.38	3.20	2.83	2.73
Timeliness of shipments	2.86	3.57	3.31	3.97

Source: World Trade Indicators 2011, World Bank

For a country like Morocco whose comparative advantage is linked to its geography, the quality of transport and trade logistics constitutes a central element of competitiveness. The New Tangier Harbor was fully completed in 2010. But its initial operational efficiency has been low and it has not reduced the cost or transit time to Europe. The sea crossing to Spain is about twice as expensive as sea crossings of similar distance from other countries. More resources should be deployed to speed the provision of licenses to shipment firms in order to reduce transport prices.

Exports not only depend on reducing tariff and non-tariff restrictions and improving the institutional environment, but also on formalities in port logistics, customs clearance, and quality and safety control, all of which affect transaction costs. Improving the trade regime without addressing basic trade facilitation issues may maintain excessive costs and delays in goods shipment, diminishing the benefits of trade liberalization.

Thus, the success of an export-led growth strategy will require a host of improvements to the institutions and services that support trade. Reducing tariffs, concluding free trade agreements, and easing regulatory barriers are necessary but not sufficient to boost exports. Complementary efforts will be required to strengthen the institutions that support exports, improve logistics, provide finance, increase the efficiency of infrastructure, and improve the skills of the labor force to achieve rapid export growth.

By adapting a risky strategy such as the Emergence Plan, the government of Morocco needs to imperatively address the problems and challenges cited above; which could hinder the country from optimizing the impact that the recent industrial strategy could have on the export sector.

Appendix I

Table 1. Top 20 of Moroccan exported products

	Share in % of total exports		Rank	
	2006	2010	2006	2010
Articles of apparel, accessories, not knit or crochet	19.2	10.7	1	3
Electrical, electronic equipment	15.1	16.4	2	1
Inorganic chemicals, precious metal compound, isotopes	8.2	7.8	3	4
Articles of apparel, accessories, knit or crochet	6.4	4.7	4	7
Fish, crustaceans, molluscs, aquatic invertebrates nes	5.5	2.8	5	12
Salt, sulphur, earth, stone, plaster, lime and cement	5.0	5.4	6	6
Fertilizers	4.1	10.7	7	2
Meat, fish and seafood food preparations nes	3.9	3.1	8	10
Mineral fuels, oils, distillation products, etc	3.8	3.7	9	9
Edible fruit, nuts, peel of citrus fruit, melons	3.1	3.8	10	8
Edible vegetables and certain roots and tubers	2.3	5.7	11	5
Footwear, gaiters and the like, parts thereof	2.2	1.6	12	15
Ores, slag and ash	1.3	1.8	13	13
Vehicles other than railway, tramway	0.9	1.1	14	17
Animal, vegetable fats and oils, cleavage products, etc	0.9	1.1	15	18
Pearls, precious stones, metals, coins, etc	0.9	3.1	16	11
Machinery, nuclear reactors, boilers, etc	0.7	1.3	17	16
Lead and articles thereof	0.4	1.0	18	20
Other made textile articles, sets, worn clothing etc	0.3	1.0	19	19
Aircraft, spacecraft, and parts thereof	0.1	1.6	20	14

Source: TradeMap2011, International Trade Center

Table 2: Preferential Trade Agreements concluded by Morocco

Agrrement/Partner (Chronological Order)	Signed in	Effective since	Products Liberalization Schedule	Coverage of	
				Agriculture	Services
Free Trade Agreements					
Greater Arab Free Trade Area (GAFTA)	1981	1998	10% annually during 1998-02, 20% in 2002-05. Removal of non-tariff barriers, but licensing	Yes	No
Arab Maghred Union (AMU)	1989	not yet	Zero tariffs, but uniform compensatory import taw of 17.5%	Yes	No
European Union (EU)	1996	2000	Three dimantling scenarios: immediate, over 4 years for goods not produced locally; over 10 years starting in 2003 for goods produced locally.	Some	neg. ongoing
European Free Trade Area (EFTA)	1997	2000		Biliteral arrangments	No
Egypt	1998	1999	Positive List for immediate phasing-out; over 5 years if tariffs < 25%; Tariffs set at 25% if current >25%; then phase-out over last 7 years.	No	No
Jordan	1998	1999		No	No
Tunisia	1999	1999	Four Lists for Morocco and three lists for Tunisia; Three product groups: zero duty; 17.5% duty; 8 year-phase-out	No	No
United Arab Emirates	2001	2003	Two negative lists . Dismantles Arab League tariffs by 10% annually	Yes	No
Agadir Agreement (Tunisia, Egypt, Jordan)	2004	2007	Zero tariffs when agreement becomes effective Agreement will supersede previous bilaterals	Yes	No
United States	2004	2006	twenty-one different dismantling schedules	Yes	Yes, with neg.lists
Turkey	2004	2006	Three dismantling schedules	No	No

Conditional Tariff Agreements					
Senegal	1963	1972	Exemptions with license, one positive list per country	No	No
Saudi Arabia	1966	1988	Exemptions with license	No	No
Iraq	1976	1983	Exemptions with license	No	No
Mauritania	1986	1986	Exemptions with license, one positive list per country	No	No
Algeria	1989	1990	Exemptions with license	No	No
Libya	1990	1990	Exemptions with license	No	No
Guinea	1997	2000	Exemptions with license, one positive list per country	No	No

Source: P. walkenhorst & M. Malouche, 2006 (World Bank)

Table 3 - Worldwide Governance Indicators (WGI), 2011

	Morocco	Tunisia	Egypt	Korea
Time Period	2006-09 Latest			
Government Effectiveness	-0.09	0.35	-0.37	1.26
Regulatory Quality	-0.03	0.11	-0.17	0.73
Rule of Law	-0.11	0.24	-0.09	0.79
Control of Corruption	-0.26	-0.04	-0.67	0.45
Political Stability / Absence of Terrorism	-0.47	0.29	-0.67	0.41

Source: Worldwide Governance Indicators (WGI), 2011

Table 4 - Export Restrictions, 2006-2009 (Latest)

Variable Name	Morocco	Tunisia	Egypt	Korea
Export taxes (as a percent of goods exports)	0.57	0.11	0.00	..
Export taxes (as a percent of tax revenues)	0.45	0.15	0.02	..
Export License usage	1	1	0.00	1
Export tax usage	1	0.00	0.00	0.00

Source: Worldwide Governance Indicators (WGI), 2011

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The ministry of Industry, commerce and ICT: http://www.mcinet.gov.ma/

The ministry of Foreign Trade: http://www.maroc-trade.gov.ma

The Moroccan Investment Development Agency (MIDA): www.invest.gov.ma

List of people met during the mission conducted in the framework of the study

Mr. Abdellatif Mazouz, Minister; Ministry of Foreign Trade

Mr. El Aïd Mahsoussi, Secretary General; Ministry of Foreign Trade

Mrs. Malika Dhif, Chief of Multilateral Relations; Ministry of Finance

Mrs. Nezha Lahrichi, CEO; Credit Export Insurance (SMAEX) & National Foreign Trade Council (CNCE)

Mr. Mounir Ferram, Director; Confederation of Moroccan Enterprises (CGEM)

Mr. Larbi Bourabaa, Secretary General; Maroc Export Center

Mr. Younes Zkriem, President; Moroccan Association of Exporter (ASMEX)

Data Source

WDI : http://data.worldbank.org

WTO : http://www.wto.org/english/thewto_e/countries_e/egypt_e.htm

4. How to move up to higher export sophistication in Tunisia

Introduction

The government has recognized the importance of exports to economic development since the mid-1970s. The government of the day adopted an export-led growth strategy by providing incentives for investment by domestic firms, welcoming foreign investment, and building infrastructure. These policies have achieved substantial success. Tunisia's exports are larger, relative to GDP, than regional comparators (Table 1), despite the fact that the country lacks mineral resources (the high level of exports to GDP in Egypt and many MENA countries reflects large oil revenues).

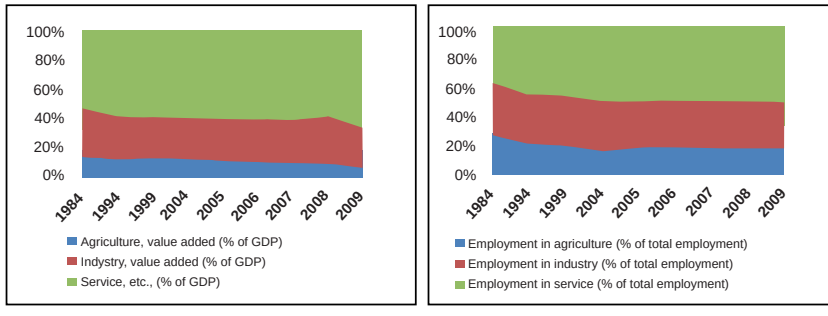
Table 1 - Export as % of GDP

	1995-99	2000-04	2005-09
Tunisia	42.84	45.70	57.50
Morocco	26.76	29.17	35.51
Egypt	18.57	21.98	33.71
S. Korea	34.47	37.02	44.74
MENA	30.21	35.64	49.45

Source: WDI 2011, World Bank

The Tunisian economy has undergone some structural change since the mid-1960s. The share of industry in Tunisia's output and employment has increased (Figure 1) Since the end of the multifiber agreement in 2005, and to face the global competition in the textile sector, Tunisia has shifted its specialization toward higher technology products. Thus, Tunisia's exports have become somewhat more sophisticated (see Chapter 1), as the share of textile exports has stagnated over the past five years, while the share of mechanical and electronic industries rose from 24 percent in 2005 to 34 percent in 2010 (Table 2).

Figure 1- Economic structural changes in Tunisia 1984-2009

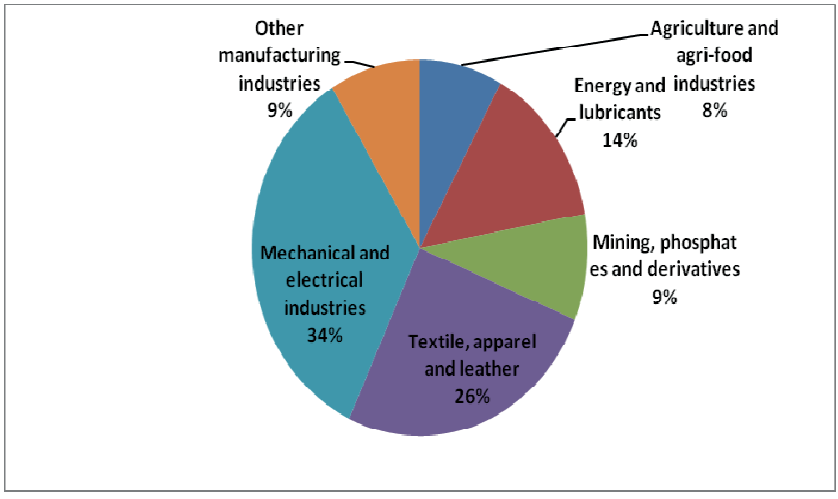


Source: National Institute of Statistics of Tunisia, 2011

Nevertheless, considerable potential remains for further structural change. Traditional products (Mining industry) still comprise 24 percent of exports, and industry remains dominated by labor-

intensive production (textiles) and assembly operations (Figure 2). Upgrading production to more advanced sectors would help reduce the volatility of export revenues, and lay the groundwork for more rapid productivity growth.

Figure 2 - Structure of Tunisia's export in 2010



Source: National Institute of statistics – Tunisia, 2011

This chapter aims to explain why Tunisia has not managed to export more sophisticated products and thus reap greater gains from export-led growth. In order to identify constraints to improving Tunisia's exports, the success of the previous Government's policies to promote exports is analyzed and the institutions created to support exports are reviewed. The chapter then turns to a discussion of policies that would improve the sophistication of Tunisia's exports.

Industrial Policy: Historical Background

Tunisia's industrial policies have achieved respectable results over the past two decades. The Tunisian economy has transitioned smoothly from a semi-closed and inward-oriented economy into an outward-oriented and export-fuelled market economy, based on manufacturing production and run by private entrepreneurs. Importantly, Tunisia has done better than many analysts predicted.

Over the past five decades, trade policies and industrial strategies have changed depending on the challenges which the Tunisian government faced. Government policies also have been influenced by regional (European Union) and international actors, particularly by major economic and financial institutions (World Bank, International Monetary Fund under the ERSAP[15]).

This section analyzes industrial policies under Bourghiba's Republic (1956-1986) and Ben Ali's era (1986-2011), which allowed Tunisia to achieve GDP growth rates and welfare gains well above the regional average.

Table 2 - Evolution of industrial strategies and the changing pattern of State intervention

1956-1969	Nationalization: Trade and 'strategic sectors' were under State control. Industry and tourism were the responsibility of the private sector.
1970-1986	Export industry promotion strategy (special benefits to exporting firms) and policy of industrial import substitution.
1986-2008	Economic Reform and Structural Adjustment Program (ERSAP); open trade policy and proliferation of regional trade agreements (EMP; GAFTA GATT, EMFTZ)
2008- 2011	'Horizon 2016'[16]. New industrial strategy adopted in 2008.

1956 - 1969: The socialist experience

After independence in 1956, the priority of the Tunisian government was the decolonization of the economy. According to Bourghiba's vision, the State should take control of some sectors, and at the same time build an economy based on investment and international trade promotion.

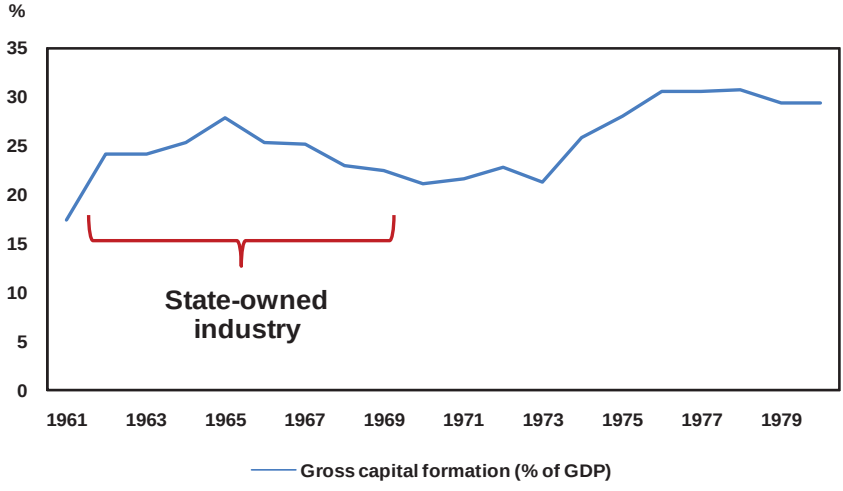
During the five years after independence, the economy had to cope with massive sales of properties and farms by settlers leaving for Europe, and the cessation of major activities undertaken previously by the colonial state. The government offered tax incentives and

15) Economic Reform and Structural Adjustment Program
16) Horizon 2016 expects to double exports and triple investment betwen 2008-2016

credit facilities in order to motivate the domestic private sector to play a greater role in investment. However, the success of these initiatives was limited, and domestic investment was not sufficient to offset the departure of foreigners.

In response to this situation, Ahmed Ben Salah[17] implemented his vision of a public sector led, import substitution-based economy. This involved a peculiar combination of import substitution, the nationalization of key firms, and export promotion. The number of the state-owned enterprises increased from 25 in 1960 to about 185 in 1970.

Figure 3 - Investment as % of GDP 1960- 1980



Source: World Economic Indicators 2011, World Bank.

However, the socialist policy of collectivism launched by Ben Salah challenged the vital interests of elite groups and major wealthy farmer/land owners, and led to widespread discontent, large demonstrations and political instability. Under popular pressure the president Habib Bourguiba dismissed Ben Salah in 1969. The minister was arrested on charges of high treason, and sentenced to ten years of hard labor.

17) Minister of Planning and Finance 1961-1969

Private sector development and export industries promotion: from protectionism to a mixed economy

As a consequence of the failure of collectivism, the new Prime Minister Hedi Nouira began a new strategy that combined import substitution, private sector development and export promotion. There was a particular focus on manufacturing (mainly textiles) and services (mainly tourism) where Tunisia was supposed to enjoy major comparative advantages. These sectors promised a rapid return on capital employed and did not require a skilled workforce. However, the government made it clear that the lead role in key sectors (heavy industry, transport, water and electricity) should be reserved for the public sector, while offering more opportunities to the private sector (textiles and tourism).

The strategy was implemented through new institutions and incentive programs. The support institutions API (Agence de promotion de l'industrie) and CEPEX (Centre de promotion des exportations) were established in 1973 to provide technical and financial support to exports and industry through high external tariffs, strict import quotas, restrictive licensing practices, preferential credits, and subsidized inputs. New laws were enacted to enhance domestic and international investments. Law 72-38 provided a host of incentives to foreign investors for approved industrial projects, largely for export production. Incentives included a wide range of tax concessions (e.g. exemption from corporate income tax during the first ten years of operation and repatriation of profits free of tax), and duty-free import of capital equipment, raw materials and semi-processed goods(Offshore regime). In 1973 the government created the Industrial Land Agency (AFI) responsible for establishment and management of industrial zones (box 1).

Box I. Why are industrial zones no longer attractive to firms?

From 1973 until 2006, Tunisia's Industrial Land Agency has launched 83 industrial zones, 16 of which are in Grand Tunis, 34 in coastal areas and 33 in the Western and Southern provinces. The Bourguiba government intended that these zones would accelerate industrial development by increasing investment and promoting international trade. The creation of industrial zones played a fundamental role in Tunisia's industrial policies until the 1990's.

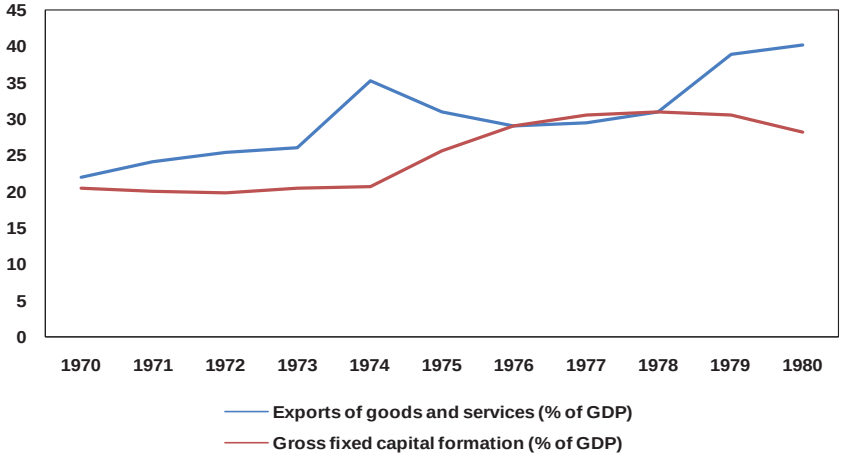
Industrial zones have been less successful in recent years. According to figures provided by the Ministry of industry and GTZ ReCapZI Project (Renforcement des Capacités de la gestion durable des Zones Industrielles), 57 percent of participating firms are not satisfied with Tunisia's industrial zones, and only a few zones operate according to approved international standards.

One of the main problems in industrial zones is inadequate management and maintenance. Almost half of industrial zones in Tunisia still have no special management or maintenance arrangements. Only 42 special management units are responsible for maintaining more than eighty industrial zones. Very few industrial zones are managed by the private sector. Techno parks provide better services through private sector management and public sector provision of basic infrastructure (roads, water and electric power).

The mixed policies of public sector control of the commanding heights of the economy coupled with incentives for private sector production achieved substantial economic progress over the 1970's: GDP growth averaged 7.5 percent per year, important investments in infrastructure were realized, exports kept pace with GDP through preferential policies, and the private sector grew rapidly under the protection of import restrictions (Figure 4). But these policies were ultimately unsustainable. High public sector deficits resulted in rise in external debt from 25.6 percent of GDP in 1975 to 65.9 percent in 1986 (Table 3). Investment fell to only 25 percent of GDP from the

peak of 32 percent in 1982, thus despite the generous incentives system and targeted actions for export activities and the setting-up of offshore regime. The government, facing high unemployment and public rioting, and unable to service its debt or finance imports, embarked on a comprehensive structural adjustment program (ERSAP) in 1986.

Figure 4 - Trends of Exports and investment during the 1970's



Source : WDI 2011, World Bank.

Table 3 - Selected Macroeconomic indicators, 1970- 1986

Variable Name	1975	1980	1981	1982	1983	1984	1985	1986
GDP growth (annual %)	7.2	7.4	5.5	-0.5	4.7	5.7	5.6	-1.4
Exports of goods and services (% of GDP)	31.0	40.2	41.4	36.9	34.4	33.0	32.1	30.2
Gross fixed capital formation (% of GDP)	25.7	28.3	31.0	34.0	31.8	32.1	28.1	25.0
External debt stocks.% of GDP	25.6	40.3	42.8	46.4	48.6	49.6	58.1	65.9

Source: WDI 2011, World Bank.

The 1986 Structural Adjustment Program (ERSAP)

In 1986 the prime minister of Tunisia, Rachid Sfar, concluded an agreement with the World Bank and the International Monetary Fund to support the Economic Recovery and Structural Adjustment Program. The ERSAP involved the reduction of tariffs and easing of quantitative restrictions on imports, the introduction of a value added tax and reductions in personal income taxes, a devaluation of the dinar, negotiations with creditors that extended the maturity on the country's $10 billion foreign debt, and a privatization program resulting in total or partial privatization of some 160 state-owned enterprises.

The government took further steps to improve the trade regime and support investment. Tunisia acceded to the General Agreement on Tariffs and Trade (GATT) in 1990, became a member of the World Trade Organization (WTO) in 1995, and entered into an "Association Agreement" with the European Union (EU) in 1996 which provided for the removal of tariff and other trade barriers on most goods starting from 2008. A 1992 law provided several benefits to exporting firms through offshore and free trade zones, and a 1994 law provided new investment incentives. The Foreign Investment Promoting Agency and Agricultural Investment Promotion Agency were set up in 1995 to promote investment.

Tunisia's economic reform program has been lauded as a model by international financial institutions. Macroeconomic stability was restored and the external debt burden fell. The ERSAP led to a sharp fall in inflation (to below 5 percent in less than 10 years) and a reduction in the current account deficit from 7.8 percent of GDP in 1986 to 2.4 percent in 1996. GDP growth averaged 5 percent over the 1990's. Supported by a favorable environment and geographical proximity to Europe, Tunisia's exports jumped from $3.7 billion in 1990 to over $16.9 billion in 2010.

Less progress has been observed on microeconomic issues. Unemployment remains among the highest in the region (14.2 percent of the labor force in 2008), and economic growth has been

limited to traditional sectors (primarily textiles, garments, footwear, leather work and mechanical and electrical appliances) and mass tourism. Tunisia needs to move towards more sophisticated sectors with higher added value to absorb new entrants to the workforce, reduce the volatility of export revenue, and promote technological catch-up.

A knowledge–intensive and innovation-oriented economy: a new area begins in 2008

It was recognized that achieving the 6.1 percent annual rate of GDP growth targeted in the 11th Development Plan (2007-11) would require a shift from traditional sectors to more technologically advanced industries. In 2008, the government adopted a new industrial policy called 'Horizon 2016' based on a study initiated by the Ministry of Industry, Energy and Small/Medium Businesses entitled National Industrial Strategy for the Years Leading Up to 2016.[18] The new policies were designed to create a quality-based, innovation-oriented and knowledge-intensive economy. The declared objectives were to double exports, triple industrial investment and raise the average annual GDP growth rate from 5 to 6 percent during 2008-2010 by promoting know-how-intensive sectors and thereby raising total factor productivity.

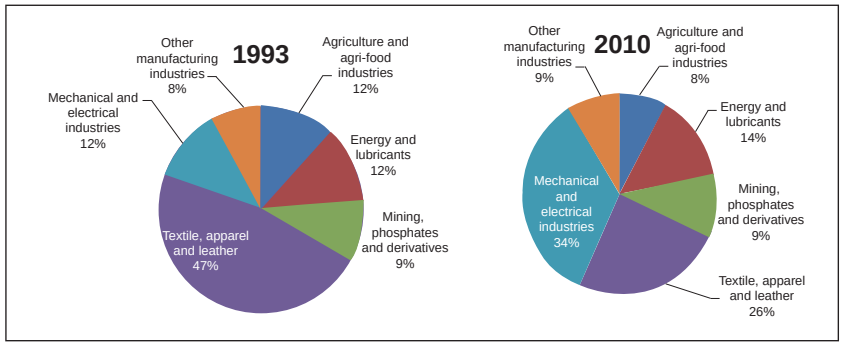
Assessment of the industrial policies

After a half century of rapid growth, the economic structure of Tunisia has changed. The share of industry in output increased during the 1970s and 1980s and has remained stable since. The share of services also rose, while agriculture declined[19] (Figure 1, Appendix I). The share of manufactures products in total exports has reached 75 percent, up from 35 percent in 1980; 6.1 percent of total exports were high-technology products in 2010. In June 2010, there were 5840 industrial companies registered with API[20],

18) The study, which involved one-on-one discussions with key economic decision makers in Tunisia and abroad and analysis by sectoral specialists and working groups, was monitored by a steering committee chaired by the Tunisian Union for Industry, Trade and Handicrafts (UTICA). It was drafted by a team of three international and two national experts, under the supervision of the Industrial Promotion Agency (API) and the management unit of the Industrial Modernization Program (UGPMI).

48 percent of which exported all of their production (offshore sector). Major structural shifts within the manufacturing sector have contributed to the development of Tunisian industry and promotion of “Made in Tunisia” in the foreign market.

Figure 5 - Tunisia Export per group of sectors: 1993 & 2010



Source: Tunisian National Institute of Statistics (INS). 2011

Thus Tunisia has gone at least some way towards becoming an industrial economy. Tunisia’s current positioning is perceived as Europe’s back office or near shore for industry and services. This approach has helped Tunisia build a high-performing, competitive industry, compared to other countries of the region. Nevertheless, the economy’s continued dependence on low-cost production and traditional export sectors makes it vulnerable to low-cost competitors. Tunisia could achieve higher growth and absorb its high-skilled unemployed by moving up to more sophisticated, high-technology products.

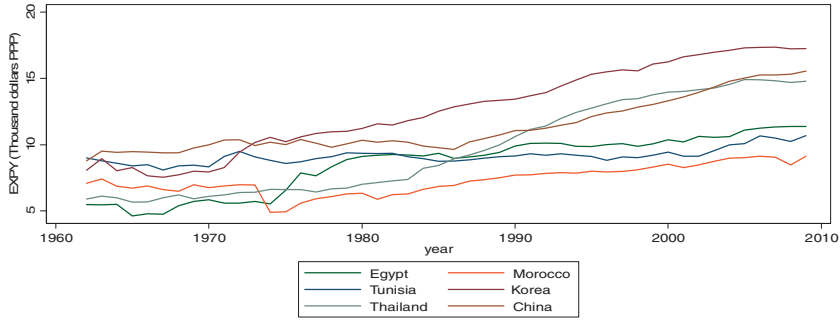
19) The share of services as percent of GDP increased to about 62%, up from 50-54% two decades ago.
20) Agency of Industry promotion

Table 4 - Tunisian Industry composition, June 2011

Sectors	TE*	OTE*	Total	%
Manufacture of food products	182	854	1,036	17.7%
Manufacture of construction products. ceramic and glass	28	422	450	7.7%
Manufacture of mechanicals and basic metals	189	425	614	10.5%
Manufacture of electric and electronic equipment	247	133	380	6.5%
Manufacture of chemicals and chemical products	122	393	515	8.8%
Manufacture of textile and wearing apparel	1,714	321	2,035	34.8%
Manufacture of wood and wood products	32	172	204	3.5%
Manufacture of leather and footwear	225	72	297	5.1%
Other manufacturing	67	242	309	5.3%
Total	2,806	3,034	5,840	100%

**: TE: Totally exporting*
OTE: Other than totally exporting
Source: Agency for the Promotion of Industry and Innovation - June 2011

Figure 6 - Export sophistication Index (EXPY), 1960-2010.



Source: Hausmann (2011)

Tunisia needs to increase the level of export sophistication, which is a good predictor of future growth (Hausmann 2011). The level of export sophistication stagnated from the 1960s to 2010 (figure 7), according to Hausmann's measurement of Tunisia's export sophistication index (EXPY). By contrast, China, Korea and Thailand started from the same level as Tunisia in the 1960s, but had doubled their EXPY by 2010. Looking at these Asian countries' experience

can illuminate policies that Tunisia should adopt to achieve similar success.

Table 5 - Hausmann's Strategies for Tunisia

Jobs			Parsimonious Transformation			Strategic bets		
	% with	JJJ		% with	PT		% with	SB
Community	RCA	Index	Community	RCA	Index	Community	RCA	Index
1 Garments	0.88	0.25	Machinery	0.09	0.38	Machinery	0.09	0.21
2 Construction materials and equipment	0.32	0.36	Construction materials and equipment	0.32	0.39	Chemicals and health related products	0.02	0.34
3 Fish & Seafood	0.36	0.38	Garments	0.88	0.43	Electronics	0.19	0.39
4 Textile & Fabrics	0.31	0.38	Misc. Chemicals	0.13	0.46	Misc. Chemicals	0.13	0.41
5 Food Processing	0.46	0.39	Textile & Fabrics	0.31	0.46	Construction materials and equipment	0.32	0.44
6 Tobacco	0.33	0.39	Food Processing	0.46	0.47	Home and office products	0.22	0.51
7 Leather	0.29	0.43	Electronics	0.19	0.47	Meat and eggs	0.00	0.52
8 Misc Agriculture	0.27	0.43	Petrochemicals	0.00	0.50	Pulp and paper	0.09	0.53
9 Petrochemicals	0.00	0.49	Fish & Seafood	0.36	0.50	Petrochemicals	0.00	0.54
10 Machinery	0.09	0.49	Misc Agriculture	0.27	0.51	Textile & Fabrics	0.31	0.57

Source: Hausmann (2011)

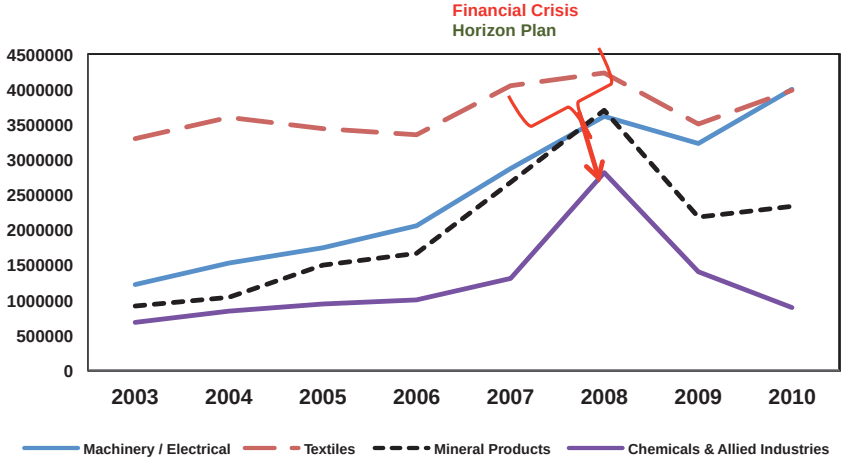
Table 6 provides a comparison of the sectoral composition of industrial strategies identified by Hausmann (Table 5) and those identified in the Horizon Plan.[21] The Horizon Plan list of sectors is close to the strategy identified by Hausmann as "parsimonious transformation" (Table 6). This strategy focuses on products that are in the vicinity of a country's current set of capabilities, but that have higher sophistication. By adopting this relatively prudent strategy (compared with Hausmann's "strategic bets" strategy), Tunisia chooses to move "slowly but surely".

21) See chapter 1 for a discussion of Hausmann's strategies.

Table 6 - Recent industrial strategy: Horizon Plan

Objective for the period 2009-2015	Targeted Sectors	Product Communities
Growth- Double export and Triple investment by 2016 from their initial level	Automobile	Machinery
	Aerospace	Aircraft
Diversification- Establish a balanced portfolio of activities for Tunisia, with new activities having virtually the same share as traditional sectors in terms of industrial exports.	Electronics	Electronics
	Textile	Textile & Fabrics/Garments/ Leather
	Food industry	Food Processing/ Meat and eggs/ Milk & cheese

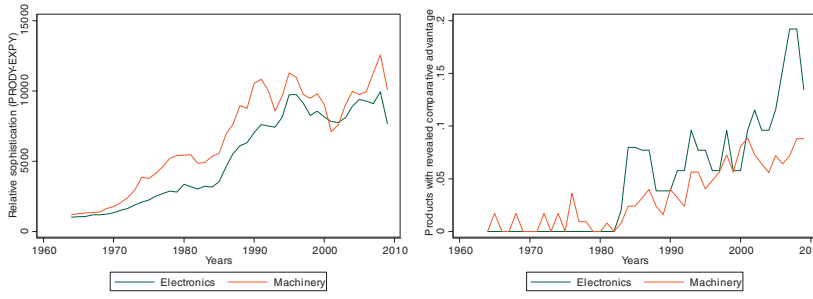
Figure 7- Evolution of export of the traditional selected sector of Horizon Plan



Source: TradeMap, ITC 2011

The Horizon plan was launched only in 2008 and coincided with the onset of the global financial crisis, so it is difficult to evaluate its impact. One hopeful sign is that following the collapse of global demand in 2009, Tunisia's exports of machinery and electrical products resumed their rapid growth since 2003, to become the Tunisia's largest export sector. In addition, Tunisia's exports of electronics and machinery remain below 20 percent of total exports (Figure 8), which suggests that there still is room for developing these products.

Figure 8 - Sophistication and competitiveness trends in Mechanical /electrical/ electronic sectors



Source: Authors calculations

The main actors and institutional elements of Tunisia's industrial policies

Since independence in 1956, Tunisian governments have consistently promoted a vision of export-led growth, especially Ben Ali's government (1987-2011), which fully endorsed the main tenets of 'open regionalism'. Export development has been essential for a small economy like Tunisia (less than 11 million people) to achieve scale economies and thus encourage investment.

Tunisia deployed important efforts in creating trade support institutions, improving the necessary infrastructure for company establishment, especially exporting firms. The Tunisian export promotion policy is mainly the responsibility of the Ministry of Industry, Energy and SMEs and the Ministry of Trade, Tourism and Handcraft.

Support institutions

The Tunisian authorities have played a useful role in helping the private sector cope with increased competition from global markets. The government has accompanied the opening of the industrial sector with the Up-grading Program (Programme de mise à niveau: PMN) and the Industrial Modernization Program (PMI). Moreover, in order to help emerging exporters overcome information and other

market failures related to penetrating new markets, the government created several trade support institutions.

Governmental institutions

Industry promotion agency (API): Created in 1973, API is a public institution responsible for the implementation of the government's industrial promotion policies. API is organized into 5 support centers, and offers services from its headquarters and 24 regional offices. API assists investors and promoters with the administrative and legal formalities necessary for company incorporation in Tunisia. It also takes care of providing logistical support, and manages more than 30 operational incubators.

Export promotion center (CEPEX): Created in 1973, CEPEX has developed considerable know-how in enhancing the position of Tunisian products in international markets. CEPEX provides a wide range of services and an international professional network to support and advise Tunisian exporters, to provide business information to foreign importers, and to organize promotional activities and meetings between potential partners. CEPEX works closely with professional bodies including UTICA, UTAP, the club of exporters, technical centers, Chambers of Commerce and Industry, and other entities. The center is under the supervision of the Ministry of Trade, Tourism and Handcraft

Up-grading Office: The national upgrading program (PMN), supported by the European Union under 1995 the Euro-Mediterranean free trade agreement, has become the key tool for helping Tunisian companies face international competition. The fundamental objective of the program is to improve the productivity of the manufacturing sector and to increase the export share of manufactured products, to meet the competition from European companies after the total dismantling of customs barriers planned for 2008. The program provides support to private sector firms that have room for growth, who plan to grow, and who face an expanding market. The goal is to restructure 4000 firms in ten years.

Several institutions have provided support for the upgrading program. These include the EU (industrial modernization program provides coaching and quality control services to firms), UNIDO (diagnosis and assessment of the program), GTZ (financial support to BMN, the upgrading office, and technical assistance to firms), KFW (financial support to firms) and AFD (financial restructuring of firms).

The program has achieved considerable success, with some reservations. According to the 7th survey of enterprises conducted by the BMN, 69 percent of firms assert that PMN assistance was satisfactory. However, more than 45 percent of firms report that receiving the premium payment is rather difficult, while only 27 percent consider it rather easy. Surveys also report that the PMN serves more offshore companies at the expense of on-shore companies, which has helped to widen the gap between the two groups. Since the launch of the upgrading program in 1996, more than 3,500 applications were approved, and only 18 were rejected. The success of the PMN thus indicates the implicit acknowledgment by Tunisian authorities that their manufacturing firms were, and are still, in need of major support to make them ready for international competition.

Private Sector- Key role in Tunisia

Tunisian Union for Industry, Trade and Handicrafts (UTICA): Created in 1947, UTICA is the voice of private sector in Tunisia. UTICA informs its members of new opportunities to grow and promote their enterprises, and reports information on the concerns they face. UTICA has offices throughout the country, covering all economic sectors. It has 17 national sectoral federations, 200 national union chambers and 24 regional unions. Membership is automatically provided to all companies paying contributions to the social security system.

Arab Institute of Business Manager (IACE): The IACE was created in 1984 on the initiative of a group of business leaders. The number of members has steadily increased from 150 in 1985 to over 450 members in 2009. All sectors (public and private) and industries are represented. Since its creation, the Institute has concentrated

its efforts primarily on the preparation and organization of Business Days to shed light on issues facing the private companies that deserve state support.

Main financial institutions

National Guarantee Fund (FNG): FNG was established in 1981 to insure loans, particularly for export production, to small businesses. The Fund aims to correct perceived market failures by which small borrowers, regardless of credit worthiness, lack access to credit resources available to large borrowers.

Capital risk investment companies (SICAR): The Tunisian financial sector has witnessed the creation of several capital risk investment companies, both public and private, since 1990. Today, more than 26 SICARs are operational in Tunisia. The main objective of SICAR's creation is to promote private investment, particularly in SMEs, through equity participation in Tunisian companies. SICAR interventions are generally more oriented to industry and services, and finance investments in the context of the national upgrading program or high value added projects.

Export Development Project: Key Support to the Tunisian Trade Strategy

In 1999, with the assistance of the World Bank, Tunisia launched an export development project (EDP1) aimed at raising the level of the country's exports and smoothing trade logistics. In 2004, the authorities concluded a second export development project (EDP2) with the World Bank to continue the program. The EDP supports all exporters with a special focus on resident firms that export a part of their production.

The largest component of the EDP is the export market access fund (EMAF), which was launched in 2000 to provide technical and financial assistance to export companies and professional associations. It was implemented by the Centre for Export Promotion (CEPEX). Its original objective was to assist 350 firms, but ultimately 550 firms have benefited from EMAF services. Entrepreneurs

consider this fund as a guarantee; they feel that export risks are shared with the government as loans. The EMAF plays the role of an export-import bank.

The EMAF has benefited from strong leadership and private sector management. It has increased exports as of the end of May 2010 by $319 million, 33 percent from new exporters, and sustained employment estimated at about 98 500 jobs for the firms involved, 55 percent of which have been permanent full-time positions. However, it is estimated that one dollar invested in EMAF generated only $20 of additional export revenues (CEPEX), well below average estimates of other export promotion agencies (Ederman, Olarreaga and Pyto 2006 find that one dollar in export promotion yields $227 in Asia, $137 in Sub-Saharan Africa, and $96 in MENA, on average). The second major component of the EDP is an export finance guarantee facility to encourage financial institutions to provide pre-shipment financing. This component has increased exports by more than $98 million. (World Bank)

The project also supported the automation of customs procedures to reduce costs and processing time. Most documentation is now transmitted via a single computer system (Tunisia Trade Net--TTN) common to all operators. According to the World Bank, which oversaw the customs automation project, the time taken to clear goods through Tunisian ports has fallen considerably.

The export development programs have increased Tunisian exports by more than $400 million from 2005 to 2009. The World Bank's Development Impact Evaluation unit conducted an evaluation exercise to assess the effect of the EDP on Tunisia's exports from 2005 to 2009. The evaluation involved surveying over 600 firms, half of which benefitted from the export market access fund. Preliminary results suggest that beneficiary firms were more successful than others at diversifying their export portfolios. The World Bank has expressed satisfaction at the results of the project, and plans to export the Tunisian experience to other African countries.

Regional Trade Agreements- Failure to diversify trade partners

Tunisia has signed several regional preferential trade agreements with its major trading partners. The Arab Maghreb Union trade agreement (AMU) was formally signed in 1989 by Algeria, Mauritania, Morocco, Libya and Tunisia, with institutional and financial support for the AMU provided by European Union. Tunisia was among the first wave of Arab countries to join the Euro-Mediterranean Partnership (EMP) in 1995. Tunisia also is encouraging greater trade with Arab neighbors through membership in the Arab-Mediterranean Free Trade (Agadir Agreement, signed in 2004) and the Greater Arab Free Trade Area (GAFTA, effective since 2005).

Tunisia's trade policy needs to reflect the goal of diversifying markets. While Tunisia's participation in the Euro-Med free trade area has helped to boost exports, the European Union accounted for almost three quarters of Tunisia's exports in 2010 (Table 7), with the bulk of these exports destined to France, Spain, Germany and Italy. By contrast, less than 30 percent of Tunisia's exports go to other developing countries.

It is possible that improving access to other developing countries' markets could help improve the sophistication of Tunisia's export basket, because Tunisian exporters would not face the same degree of competition as in developed country markets[22] Thus the government is promoting "Made in Tunisia" in Eastern Europe, and is negotiating free trade agreements with the West African Economic and Monetary Union (UEMOA). There may be further opportunities for free trade agreements with other African Economic Communities (UEA, CEDEAO, and CEEAC).

22) Borrowing from a model due to Romalis (2004) where the pattern of bilateral trade is fully determined in a two region world, J. Regolo demonstrated that bilateral trade between Southern countries is more sophisticated than bilateral trade from Southern to Northern countries. "*.... the more trading partners are similar in terms of endowments in physical capital, human capital and land the more their exports are diversified,"*

Table 7 - Main destination of Tunisian Exports

Destination	1980	1985	1990	1995	2000	2005	2010
European Union	89.5	77.4	78.6	83.1	81.5	81.2	73.4
Libya	0.8	1.0	3.3	3.9	4.5	4.9	6.2
Algeria	2.6	4.1	2.4	2.6	0.7	1.4	2.4
Morocco	0.1	0.4	0.7	0.6	0.5	1.2	1.7
Egypt	0.0	0.0	0.1	0.2	0.6	0.1	0.4

Source: Direction of Trade 2011, IMF

Infrastructure and education

The 10th Development Plan of Tunisia called for building infrastructure and increasing human capital. Special efforts were made to modernize the road network, enhance development of industrial zones, and upgrade ports and airports.

Table 8 - Research and development expenditure (% of GDP)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Tunisia	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.7	1.0	1.0

Source: WDI 2010, World Bank

The National Industrial Strategy for the Years Leading up to 2016 (see above) argues that the creation of a quality-based, innovation-oriented and knowledge-intensive economy requires greater investment in education. Tunisia has long devoted considerable resources to education and training: the number of students in school has multiplied ten-fold since 1990 (to more than 357 thousand). The government used to finance training, including English and computer sciences programs for university students, through its specific funds for vocational training. The allocation for

the Ministry of High Education and Scientific Research increased from 3.6 percent of the total budget for the academic year 1999/2000, to 6.1 percent for 2009/2010. Numerous technological institutes have been established to increase the number of mid-level managers and to adapt training resources to the country's needs, while expenditures on research and development tripled as a share of output from 1996-2005 (Table 8).

Technological parks

Efforts to move towards a knowledge-based economy, as enunciated in the 10th Development Plan (2002-2006), have included the building of Technopôle (technological parks) to support firms involved in advanced manufacturing and services. The technological parks host activities in the field of training, scientific and technological research, as well as production and technological development, and help create links between companies, universities and research centers. The first technological park, named pôle El Ghazala des technologies de la communication (Communication technology El Ghazala Pole), was set up in 1999. Seven technological parks are now at least partially operational

Public-private partnerships launched in Tunisia for the management and maintenance of techno-parks have been very successful. However, the legal framework for public-private partnerships needs to be updated. During AfDB's mission to Tunisia to conduct the study, private sector representatives operating in a technological park pointed out that Tunisian law allowed only public investment in industrial parks. Private techno-poles are a new concept in Tunisia and there is no legal framework applicable to public-private partnerships, which has delayed the launching of techno-parks. Adapting the legal framework for PPPs is essential to achieve the potential of technological parks.

Table 9 - Techno-Parks in Tunisia

Technopole	Specialization	Situation
El Ghazala (Tunis)	Communication technological	Operational since 1999
Borj Cedria (Tunis)	Renewable energy and biotechnology.	Operational since 2008
Sidi Thabet (Tunis)	Biotechnology and Pharmaceutical Industry	Operational since 2008
Sousse Technological Park	Mechanical. Electronic. informatics	Operational since 2006
Sfax Technological Park	Informatics & multimedia	Operational since 2008
El Fejja (Monastir)	Textile & clothing	Operational in 2011
Bizerte technological park	Food Industry	Operational in 2010
Competitiveness Centre of Gafsa	Mining Industry	Operational in 2012

Source: Authors

Investment incentives policies - Encouraging foreign investment

The Tunisian government has also been relatively successful in creating an attractive environment for export-oriented foreign investors. The Foreign Investment Promotion Agency (FIPA) was established in 1995 under the supervision of the Ministry of Development and International Cooperation to promote foreign investment. In September 2003, FIPA was certified ISO9001: 200 by VERITAS Quality International (BVQI)[23].

23) Bureau Veritas SA (EPA:BVI) is a multinational company providing conformity assessment, certification and consulting services to industry, government and individuals (http://www.bureauveritas.com)

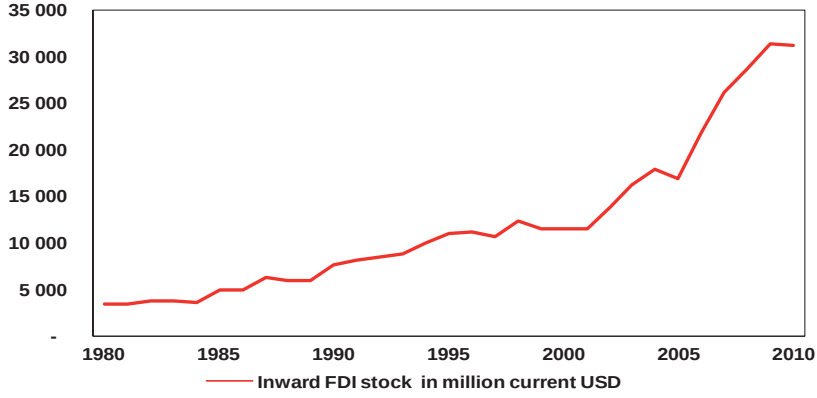
Table 10 - Tunisia ranked 23 the most attractive off-shoring destination in the world (50 countries)

Rank	Country	Financial Attractive-ness	People Skills & Availability	Business Environ-ment	Total Score
1	India	3.11	2.76	1.14	7.01
2	China	2.62	2.55	1.31	6.49
3	Malaysia	2.78	1.38	1.83	5.99
4	Egypt	3.1	1.36	1.35	5.81
5	Indonesia	3.24	1.53	1.01	5.78
6	Mexico	2.68	1.6	1.44	5.72
7	Thailand	3.05	1.38	1.29	5.72
8	Vietnam	3.27	1.19	1.24	5.69
9	Philippines	3.18	1.31	1.16	5.65
10	Chile	2.44	1.27	1.82	5.52
23	Tunisia	3.05	0.81	1.37	5.23
37	Morocco	2.83	0.87	1.26	4.96

Source: The A.T. Kearney Global Services Location Index™. 2011

FDI inflows increased to more than 10 percent of GDP in 2006 (thanks to the privatization of Tunisie Telecom), and the stock of FDI has increased by a third since 1980 (Figure 9). Tunisia is becoming an attractive destination for European investment due to geographical and cultural proximity. But even firms from the BRICs and North America are increasing their investments, in part due to Tunisia's entry into a free trade area with the European Union since January 2008. In 2010, firms from the United States and Canada invested about $190 million in Tunisia, and more than 99 North American companies employ some 14 thousand people. Nevertheless, Tunisia faces a challenge in diversifying FDI from energy sector (60.8 percent of FDI went to energy in 2010) to manufactures (26.5 percent of total FDI inflows in 2010).

Figure 9- Foreign direct investment stock in million dollars, 1980-2010



Source: WDI 2010, World Bank.

Since the introduction of the offshore regime in 1972, Tunisia multiplied incentives for foreign investors and firms to develop its industry. As a result, the offshore sector is well developed; it represents more than 48 percent of the manufacturing sector (Table 4). The textile industry is largely dominated by the offshore sector (84 percent of textile companies); followed by electronics and electrics industry (65 percent of electronics & electrics-related companies).

The offshore regime has successfully attracted FDI and contributed to developing a competitive manufacturing industry; 85 percent of companies' foreign participation are in the offshore regime, and 61 percent of them are wholly owned by foreigners (source: FIPA[24]). Most FDI inflows are under the offshore regime, while the onshore regime is relatively neglected. The concentration of FDI in the offshore sector limits the technology spillover effects of the competitive export sector to the rest of the economy. Tunisia needs to encourage further foreign participation in the onshore regime, so that the domestic economy can better enjoy from benefits of foreign investment (spillovers)

Policies to improve export sophistication

According to the Africa Competitiveness Report 2009, the Tunisian economy is one of the most robust performers in Africa. GDP growth

24) Foreign Investment Promotion Agency, Tunisia

averaged more than 5 percent per year from 1990-2009, and the government has maintained macroeconomic stability and achieved considerable social progress. Nevertheless, traditional products comprise a large proportion of Tunisian exports, the share of industry in output has changed little over the past decade, and technological progress has been limited. Export growth has averaged under 5 percent since 1980, significantly below comparators (Table 11). The Tunisian economic model has reached its limits, and it is time to move towards economic strategies that enhance competitiveness and encourage the production of more technologically advanced products (Hausmann and Rodrik, 2006).[25]

However, adopting a strategy designed to create a knowledge-intensive economy without addressing basic and traditional challenges (such as trade tinance, risk culture and voice and accountability issues) may maintain dependence on low-cost production and high unemployment, thus diminishing the benefits of an export- led growth strategy. Looking at some Asian countries' experience can illuminate policies that Tunisia should adopt to achieve similar success.

Table 11 - Exports of goods and services (annual % growth)

Country Name	1970-1979	1980-1989	1990-1999	2000-2009
Tunisia	11.98	4.85	4.83	4.09
Morocco	3.40	6.92	6.95	5.85
Egypt	6.97	6.07	4.28	13.10
Korea, Rep.	22.85	11.52	14.16	9.96

Source: WDI 2010, World Bank

Strengthen Voice and accountability

The results of programs adopted to promote innovation and technologically-advanced industries need to be evaluated. According to the World Governance Indicators Report, in 2009

25) Hausmann and Rodrik « What you Export Matters », 2006

Tunisia was ranked behind its regional competitors, Egypt and Morocco, and very far behind South Korea in terms of Voice and Accountability (Table 12). Poor governance can erode the effectiveness of export development programs and make it difficult for stakeholders to report their concerns effectively. A Results Based Accountability practice[26] could help improve performance of innovation programs and services offered by public trade support institutions and industrial promotion agencies.

The PMN has benefited from rigorous evaluation. Under the supervision of Office of the upgrading program (BMN), the Tunisian Institute of Competitiveness and Quantitative studies (ITCEQ) assesses the effectiveness of the PMN through semi-annual surveys of two samples: enterprises served by the upgrading program and a control sample of enterprises not served. This assessment seeks to measure the efficiency of the PMN and whether it is reaching its primary objective of providing Tunisian companies with the tools needed to improve their competitiveness. The adoption of recommendations provided by this evaluation has been one of the key factors in PMN's success. Undertaking similar evaluations for other government programs could have similar, beneficial results.

Table 12 - Voice and Accountability (Rank, close to zero: worst governance), 2000-2009

Country Name	1996	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009
Tunisia	24	26	26	20	23	24	20	13	12	13	11
Egypt	20	24	24	19	20	20	23	14	13	15	15
Morocco	30	43	33	35	28	27	27	27	26	26	27
Korea, Rep.	63	67	67	70	70	71	72	68	68	67	68

Source: WDI 2010, World Bank

26) Results Based Accountability (RBA) is a management tool that can facilitate collaboration among human service agencies, as a method of decentralizing services, and as an innovative regulatory process. At a minimum, the term implies that expected results are clearly articulated, and that data are regularly collected and reported to see whether results have been achieved.

Develop entrepreneurship culture

In 1974, during an interview with Marc Nerfin, Ahmed Ben Salah said that *the Tunisian is not focused on investment; he remained, as in the time of the Phoenicians, a merchant. He negotiates any way, driven by the desire to get rich quick….No investments. Where is all the money earned by all importers of Tunisia, all exporters, all those who had more or less real monopoly? Where did they put their money earned many years ago? Who has built something? Or created a business?*

It is difficult to quantify, but there is a sense that private sector activity is limited and less dynamic in Tunisia than in many other economies. The government has tried to spur entrepreneurship through providing technical and financial support and educating students (in 2001 a compulsory module on entrepreneurship was introduced in all business and management schools). However, the majority of Tunisian businessmen are only prepared to invest in relatively simple and low-risk activities which promise quick and secure profits, while government financial support gives businessmen little incentive to risk their personal fortunes to invest. A lack of risk taking contributes to the failure of the Tunisian economy to generate technologically-advanced products, which often involve significant risk. The government needs to make more of an effort to improve the credibility of its economic policies and the efficiency of its business services, which would lower perceived risk of engaging in new activities.

The second challenge relates to the capacity of the educational system to train youths who wish to engage in self-employment, after a long experience with salaried employment, especially in the public service. Hence, the educational system is expected to contribute in preparing the graduates of this system for better integration into the labor market. To that end, the government should match school syllabuses with real labor market needs.

Financial System - Provide financial assistance to exporters

The Tunisian financial system is dominated by the banking sector and characterized by heavy State involvement. Apart from the capital market which comprises a list of 55 companies (2011), the financial

system is supervised by the Central Bank of Tunisia (BCT). Many of the measures implemented have led to an improvement of the institutional framework of the financial system, with the adoption of a statutory and prudential framework that meets with international standards and a better response to demand for financing generated by the development of the Tunisian private sector. The credits to the economy increased by 17% on average in 2007-2010[27] (source: BCT[28]). However, many SMEs still struggle to obtain access to loans. The market capitalization of listed companies still remained marginal at about 24 percent of GDP in 2010, very far from Egypt and Morocco scores where the market capitalization are 37.7 and 75.8 percent of GDP respectively.

Box II. Generational Fund: new boost for investments

The Generational Fund is a new solution advocated by the Jasmine Plan for the period 2012-2016 to boost investment in Tunisia With an initial budget of nearly 2.5 billion dinars ($1.9 billion), the Fund aims to contribute to the funding of large-scale projects with the goal of eventually transferring the State's ownership share to private investors. The Fund will establish a capital market (an exchange where stocks can be traded) designed to fund small and medium enterprises (SMEs) and small and medium industries (SMIs), which account for 86 percent of the Tunisian industrial sector. The Fund also will support needed reforms in tax policy, administration, and the investment code.

The Fund could generate overall investments of $30 billion in the next five years, thanks to combined leverage and multiplier effects. It will also contribute to the creation of over one million direct and indirect jobs (Ministry of Finance).

The Government, as a major sponsor of this Fund, will play a key role in management, but will provide necessary latitude to private investors. The Minister of Finance has stressed the challenges involved in marketing investment projects abroad and mobilizing competent and specialized teams in private equity to identify new investment opportunities.

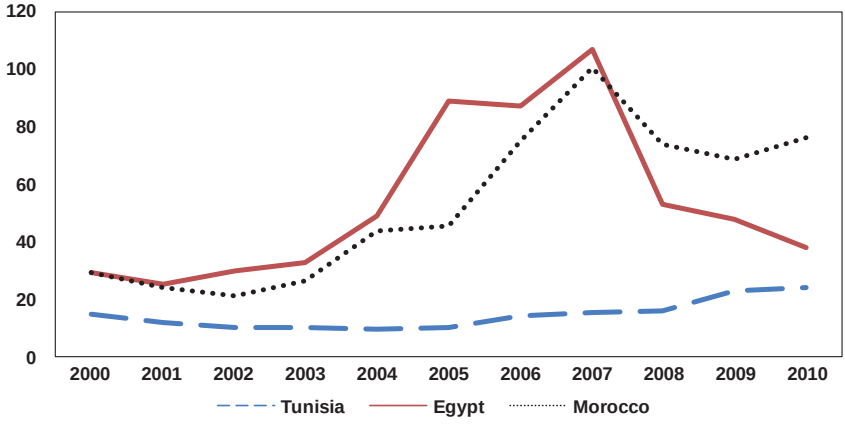
Source: Tunisian News Agency

27) Tenth Development plan period 2007-2011
28) Tunisia Central Bank

During the last decade, the role and efficiency of capital markets were consolidated through various measures. However, recourse to such markets by Tunisian companies through the issue of securities and debentures to raise funds remains limited although there are encouraging tax incentives, in particular a tax reduction for companies that engage in a public issue of 35% to 20% (Figure 10).

A survey[29] of recipients of PMN resources finds that lack of finance is the main obstacle to increasing investment: 42 percent of firms perceive limited equity, and 29 percent limited access to bank finance, as a major constraint on investment. Access to finance is still one of the major challenges of the Tunisian economy. In addition to the EMAF, creating an Export-Import Bank is becoming essential to better support Tunisian exporters.

Figure 10 - Market capitalization of listed companies (% of GDP)



Source: WDI 2010, World Bank

Over the past two decades, Tunisia has achieved high rates of growth and achieved a modern and competitive manufacturing sector through reliance on outward-oriented policies. Nevertheless, export growth has remained below some regional comparators and well below that of the successful East Asian economies, structural

29) Survey conducted by the Tunisian Institute of Competitiveness and Quantitative Studies (ITCEQ) in 2010

transformation has been limited, and manufacturing exports remain concentrated in low-skilled and processing sectors. To continue its economic development, Tunisia has to move towards more technologically sophisticated export products. This chapter has reviewed the institutional and policy framework that support export and industrial development, and recommended policies that could guide Tunisia to fully enjoy benefits of a technologically-advanced and trade oriented economy.

Appendix II

Table 1. Main reforms of the structural adjustment Program

Trade Policy	Tax Policy	Monetary policy	Exchange policy
Phasing out of import tariffs and quantitative restrictions with the aim to liberalize everything, except for imports of luxury products until 1991	Establishment of a value added tax (VAT) in 1988, set at three rates: 6% for services and consumer base, 17% for most goods and services and 29% for luxury goods	Partial irregularity in interest rates	10% devaluation of the Tunisian dinar in 1986 to restore competitiveness
Tariff reform with reduction in higher tariffs and an increase of 5% to 10% of the minimum tariff	Establishment of the tax on personal income, reduced by 65% to 35%	Reduction in reserve requirements	Progressive liberalization of current account transactions
		Alleviation of conditions for the approval of new loans by the Central Bank	

Source: Authors

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10th and 11th Economic Development Plan of Tunisia

List of people met during the mission conducted in the framework of the study

Mr. Abdellatif Hama, CEO , Export Promotion Center (CEPEX)

Mrs. Hager Ben Cheikh Denguezli, Director of International

Cooperation, Export Promotion Center (CEPEX)

Mrs. Neila Gongi, CEO ,Technopole Monastir –El Fejja

Mr. Nidhal Hedfi, Senior Manager of Development & Innovation, Technopole Monastir –El Fejja

Mr. Ramzi Zammali, Manager Marketing & Investment Department, Technopole Monastir –El Fejja

Mr. Hichem Turki, General Director, Sousse Techno-Park, Technopole Monastir –El Fejja

Mr. Chaker Laajimi, Coordinatior of Sousse Incubator, Industrial Promotion Agency, Sousse Techno-Park

Mr. Maouia Hajri, Regional Director, Sousse - Industrial Promotion Agency, Sousse Techno-Park

Mr. Ghassen Meftah, Manager Yamaichi Electronics

Mrs. Monia Bouatay, Engineer, Yamaichi Electronics

Mrs. Saida Hachicha, General Director of international cooperation, Ministry of Trade

Data Source

WDI : http://data.worldbank.org

WTO : http://www.wto.org/english/thewto_e/countries_e/egypt_e.htm

5. Conclusion

Industrial strategies have yielded quite remarkable results in the three countries. Over the past two decades, Egypt, Morocco and Tunisia have achieved relatively high growth rates by adopting outward-oriented strategies to establish a modern and competitive manufacturing industry. However, this economic orientation is still timid compared to policies in some Asian countries, particularly South Korea.

The rise in exports (5 percent on average over the past decade) has not been sufficient to reduce unemployment, which remains above 10 percent of the labor force in Egypt, Morocco and Tunisia, higher than in most other developing regions. Adopting an export-oriented policy without addressing basic and traditional challenges (such as trade finance, trade facilitation and governance issues) has tended to maintain dependence on low-cost production and high unemployment.

A successful export-led growth strategy will require a host of improvements to the institutions and services that support trade. Reducing tariffs, concluding free trade agreements, and easing regulatory barriers are necessary but not sufficient to boost exports. Complementary efforts will be required to strengthen the institutions that support exports, improve logistics, provide finance, increase the efficiency of infrastructure, reduce corruption and improve the skills of the labor force.

South Korea has fully benefited from its export-led growth strategy. It has succeeded in transitioning from a heavily indebted poor country to a high-income country in less than 50 years. Moreover, over the past 30 years South Korea has been a model example of improving export sophistication and competitiveness, as well as successfully overcame two financial crises (1997 & 2007). Most interestingly for North African countries, the structural transformation from low to high tech industries has been largely driven by the Government's industrial policies that promoted selected export industries while proceeding with a rapid trade liberalization since the late 1980s.

The next chapter aims to identify lessons from Korean experiences which the government of the three countries can adopt to improve export sophistication and achieve continued and rapid development.

The Korean Experience and Policy Implications for North African Economies

Ji Hong Kim

1. Introduction

In the 1960s, economic condition in Korea was similar to those of many developing countries. Per capita GNP was $82 in 1961, and the exports amounted to only $43 million (Korea had run balance of payments deficits since 1948). Despite these difficult initial conditions, by 2010 Korea's per capita GNP reached $20,759 while its total trade volume expanded to almost $891 billion. The manufacturing sector's share of GNP increased from 14 percent in 1961 to 27.6 percent in 2010, while of the share of the agricultural, forestry and fisheries sector decreased from 37 percent to 2.7 percent.

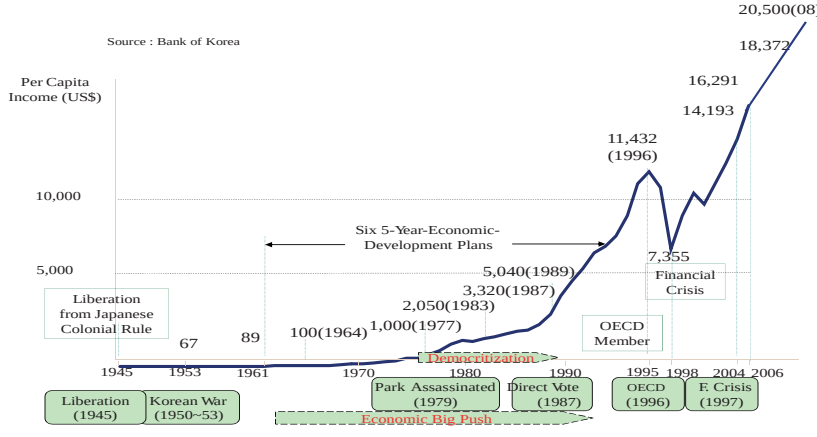
Korea's success has been matched by only a few of the roughly one hundred developing countries that gained independence after the Second World War, and the Korean experience provides a remarkable example of the role of export promotion in industrialization. Korea's development offers several lessons for other developing economies, including North African economies.
The Korean experience also illustrates the relationship between political democratization and economic development. Korea achieved rapid growth from the 1960s under authoritarian regimes, and free elections were not held until 1987. Economic development generated pressures for democracy, led by a rising middle class who were frustrated by the lack of political and economic opportunity.

Since then, development and democracy have reinforced each other, making it possible for an authoritarian state to transition to democracy and for democracy to consolidate itself and to facilitate development.

The Korean development model faced severe limitations as the 20th century drew to a close. The financial crisis of 1997 demonstrated the limits of an input-driven growth paradigm, underlining the need for improvements in productivity generated by technological progress. Faced with competition from other rapidly-growing developing countries with low labor costs, Korea had to move into more advanced products. Following the crisis, Korea undertook a comprehensive restructuring of corporate and financial sectors, public sector administration, and labor markets. These efforts enabled Korean economy to move towards a knowledge-based economy.

This chapter reviews the Korean experience of export led growth and the lessons for North African countries. We first consider Korea's export-led growth strategy and structural transformation, and then briefly discuss trade, industrial, & cluster policies. A final section distills lessons from the Korean experience and recommendations for Tunisia, Egypt, & Morocco.

Figure 1 Growth Path of the Korean Economy

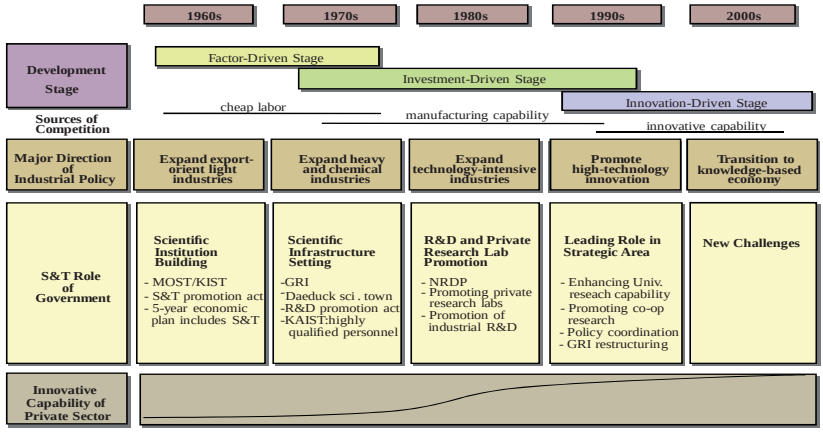


Source: KDI, Bank of Korea

2. Overview of the Korea's Development Process

Korea's development process can be thought of as driven by factor accumulation during 1960s and 1970s, large investments during 1980s and 1990s, and innovation in the 2000s (figure 2).

Figure 2 - Three stages of economic growth in Korea

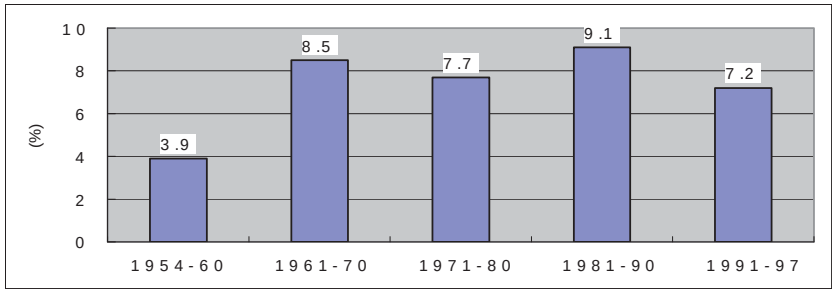


Source: Korea Development Institute

Macroeconomic performance

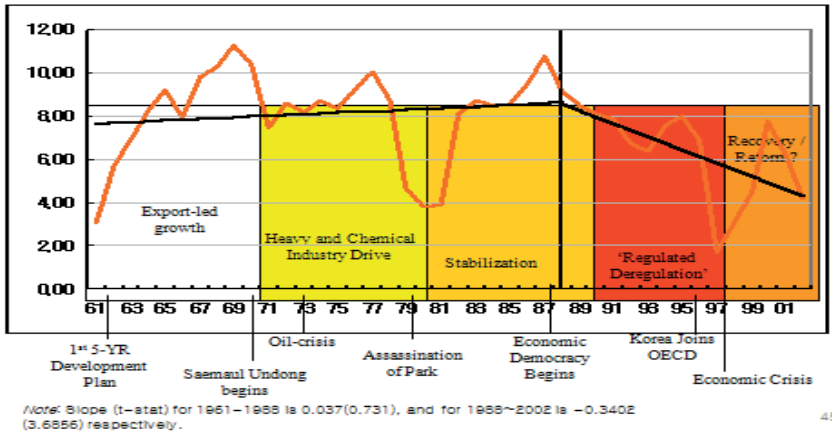
The Korean economy has sustained high rates of economic growth over the past half century, albeit with cyclical fluctuations. GDP rose by 8.5 percent per year in the 1960s (twice the 1950s average), 8.8 percent in the 1970s (excluding the decline in output in 1980 with the oil price rise), and 9.1 percent in the 1980s (figure 3). The 1990s saw a decline in growth to 7.2 percent owing to the financial crisis, and growth has since remained much lower than in previous decades.

Figure 3 Average Annual GDP Growth Rates



Source : Bank of Korea

Figure 4 GDP Growth rate (3YR Moving Average)

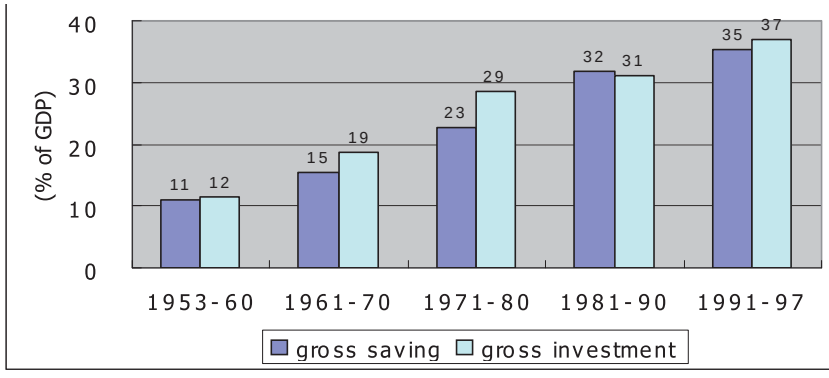


Source: Bank of Korea

Rapid growth has been accompanied by high saving and investment rates, which rose from about 11 percent in the 1950s to the mid-30s in 1990 (Figure 5). Economic development in the 1960s and 1970s was driven by rapid increases in investment, in the latter decade reflecting government-led investments in heavy chemical industries. The investment rate fell in the early 1980s (to well below trend), as government policies emphasized a rationalization of investment after excessive levels in the 1970s (figure 5). The investment rate then increased again, to a peak of 40 percent

late in the decade, and remained high during the period of over investment prior to the late 1990s crisis. The economy has become progressively less dependent on investment, with the recovery after the crisis leaving the investment rate well below the peak. Except in the 1980s, investment has consistently exceeded savings, with the gap financed by foreign investment.

Figure 5 - Savings and Investment Rates



Source: Bank of Korea, Korea as a Knowledge Economy

Industrial Structures

The process of industrialization has been accompanied with radical changes in industrial structure. Until the early 1970s, light industries such as textile and apparel and food and beverages dominated manufacturing (Table 1). Entering into the 1980s, the share of heavy-chemical industries (HCI) exceeded 50 percent of manufacturing and continued to increase afterwards. By 2000, HCI accounted for about 80 percent of manufacturing, with electronic products, chemicals, and automobiles the major products (Table 2).

Table 1
Production Structure of the Korean Economy, 1953-2000
(Unit: %)

Year	Agriculture, Fishery & Mining	Manufacturing	Light industries	Heavy-chemical industries	Services
1953	48.4	9.0	78.9	21.1	42.6
1960	38.9	13.8	76.6	23.4	47.3
1970	28.7	21.3	60.8	39.2	50.0
1980	16.7	28.6	45.6	54.4	54.7
1990	9.3	28.9	32.6	67.4	61.8
2000	5.3	29.4	20.7	79.3	65.3

Source: Bank of Korea, National Accounts, each year. , KDI

Table 2-Top Ten Leading Industries in Korea's Manufacturing
(Unit: %)

Rank	1970		1980		1990		2000	
	Industries	Share	Industries	Share	Industries	Share	Industries	Share
1	Food & beverage	28.6	Textile & Apparel	19.2	E&E products	14.6	E&E products	25.2
2	Textile & Apparel	20.4	Food & beverage	19.0	Automobile	13.2	Chemicals	13.9
3	Chemicals	11.5	Chemicals	13.1	Food & beverage	12.9	Automobile	11.3
4	Automobile	9.1	E&E products	10.4	Chemicals	12.9	Basic metal	8.0
5	Paper & printing	5.5	Basic metal	6.7	Textile & Apparel	11.5	Food & beverage	6.9
6	Non-metallic mineral products	5.3	Automobile	6.1	Basic metal	9.0	Machinery	6.9
7	Coal & petroleum ref.	4.2	Coal & petroleum ref.	5.5	Non-metallic mineral products	5.6	Textile & Apparel	6.9
8	E&E products	3.7	Non-metallic mineral products	5.3	Machinery	5.5	Fabricated metal products	4.8
9	Machinery	2.3	Paper & printing	3.9	Paper & printing	4.6	Paper & printing	4.3
10	Basic metal	1.5	Machinery	3.7	Fabricated metal products	3.8	Coal & petroleum ref.	4.2
	All manufacturing (% of GDP)	21.2	All manufacturing (% of GDP)	28.2	All manufacturing (% of GDP)	28.8	All manufacturing (% of GDP)	29.4

Source: Bank of Korea, National Accounts and Statistical Yearbook, various issues, KDI.

Export Policies in the 1960s and 1970s

Korea benefited greatly from access to foreign markets in the 1960s and 1970s[30]. The expansion of world trade under GATT (Kennedy Round and Tokyo Round) and the access to the United States due to GSP (General System Preference), in addition to Korea's export promotion efforts, have been crucial to Korea's export success.[31] Most importantly, Korean policies towards export promotion, the exchange rate, and imports enabled the economy to exploit these international opportunities.

The Korean government provided a set of incentives (see Table 3) that made exporting a profitable activity for private-sector entrepreneurs. The government took steps to maintain a competitive exchange rate; for example, the Korean currency was devalued by almost 100 percent in 1961-64. Finance was channeled to exporters through preferential interest rates on working capital loans (the rate fell from 14 percent in 1960 to 6 percent in 1967) , and increases in the size of loans (relative to the gross amount of foreign exchange earned) eligible for low interest rates. Exporters were exempted from tariffs, import quotas, indirect taxes on intermediate and capital goods, and indirect taxes on export sales. The amount of raw materials that exporters could import free of duty was determined by input-output calculations, which included a margin for 'waste allowance', in itself a significant subsidy since excess raw materials could be resold in the domestic market or used to produce goods for domestic consumption.

30) Korea joined the GATT in 1967.
31) In the 2010s, these favorable contexts may not be applicable to African economies. The changed global context may require African economies to adopt different policies.

Korea's export promotion policies have evolved since their introduction in the 1960s. Before 1973, subsidies were provided for exports, but did not favor particular firms or industries. The private sector, encouraged by comprehensive incentives, channeled resources into export oriented activities with little direct involvement by the government. This changed with the drive to develop heavy and chemical industries from 1973-79, where specific economic activities were encouraged.

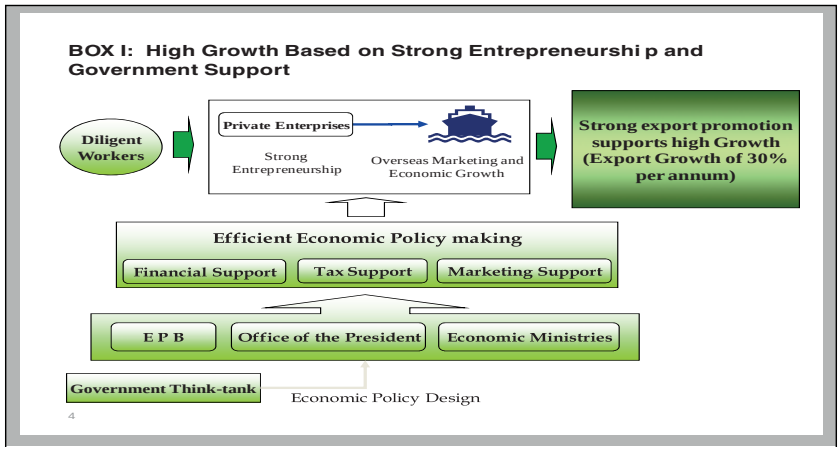


Table 3 - Major Export Promotion Schemes

Types of Incentives	Duration
I. Tax Incentives	
1. Commodity Tax Exemption	1950.4-
2. Business Tax Exemption	1962.1-
3. Reduction of Corporation and Income Taxes by 50% on Earnings from Export	1961.1-1972.12
4. Accelerated Depreciation Allowance for Fixed Capital Directly Used for Export Production in Mining, Fishing & Manufacturing	1968.1-
5. Reserve Fund Deducted from Taxable Income to Develop New Foreign Markets	1969.8-
6. Reserve Fund Deducted from Taxable Income to Defray Export or Foreign Investment Losses	1973.3-
II. Tariff Incentives	
7. Tariff Exemptions on Capital Equipment for Export Production	1964.3-1973.12
8. Tariff Payments on an Installment Basis for Capital Equipment Utilized in Export Production	1974.1-
9. Tariff Exemptions on Raw Material Imports for Export Production	1961.4-1975.6
10. Tariff Drawback on Imported Raw Materials Used for Export Production	1975.7-
11. Wastage Allowance	1965.7-
III. Financial Incentives	1948.2-1955.7
12. Financing for Collection of Export Goods	1950.6-1955.7
13. Export Shipment Financing	1959.11-1964.1
14. Export Promotion Fund Financed by a Counterpart Fund	1961.10-1972.2
15. Financing Imports of Materials to be Used in Export Production	1950.6-
16. Export Credits (Trade Credits before 1961)	1962.9-
17. Financing for Suppliers of U.S. Offshore Military Procurement	1964.7-1969.9
18. A Fund to Promote the Export Industry	1964.2-
19. A Fund to Convert Small and Medium Size Firms into Export Industries	1969.9-
20. A Fund to Prepare Exports of Agricultural and Fishery Products	1967.5-
21. Foreign Currency Loans	1969.10-
22. Financing Exports on Credit	1949.6-1961.1
IV. Other Promotion Schemes	1953.1-
23. A Foreign Exchange Deposit System	1951.-1961.5
24. Trade Licensing Based on Export Performance	1954.-1955.&
25. An Export Bonus with Preferential Foreign Exchanges	1960.-1965
26. Export Subsidies	1959.-
27. Discounts on Railroad Freight Rates	1960.4-
28. Monopoly Rights to Export Specific Items to Specific Areas	1961.9-
29. Creation of Exporters Associations on Various Export Products	1962.-
30. The Financing of KOTRA	1962.11-
31. An Export-Import Link System	1965.-1970
32. Discounts on Electricity Rates	1965.-
33. Waiver Issuance for Shipping	1965.3-
34. A Local L/C System	1967.2-
35. Differential Treatment of Traders Based on Export Performance	1969.1-
36. Export Insurance	1975.5-
37. General Trading Company	1976.6-
38. An Export-Import Bank	

Source: Hong, Won Tack, Trade Distortions and Employment Growth in Korea, KDI, 1979.

Industrial Clusters and Free Export Zones

Providing essential infrastructure in a specific location (referred to as industrial clusters-see Box 2) can assist firms' development by reducing the cost of transport, communications and energy facilities, and by encouraging interactions that help to overcome coordination problems and increase the potential to capture scale economies. However, industrial clusters should not be relied on excessively, due to limited fiscal resources and the wish to avoid divisions between regions or classes that can impair national integration and social capital. The development of industrial clusters played an important role in the growth of manufacturing in Korea (Table 4).

Box II: Industrial Parks and Clusters

The goal of industrial clusters is the enhancement of competitiveness and innovation through the maximization of interactive learning and knowledge spillovers in certain sectors and/or regions. Policies towards industrial clusters cover 3 infrastructure-related areas: physical infrastructure, public governance, and institutional arrangements (social capital and finance)

Industrial complexes in Korea have changed with the stages of economic development:

- 1960s-early 1970s: Mere agglomeration (linkages between firms were weak)
- Late 1970s-1990s: Industrial clusters (inter-firm linkages were formed with economies of scope)
- 2000s: Innovative clusters (linkage between firms+ R&D institutes+ supporting agencies), synergy in innovation

In the 1960s, the Korean government concentrated available resources on a limited number of industrial complexes. Fifteen industrial complexes were developed, the majority in the Seoul metropolitan area (7) and in the southeastern region (6). The government also implemented a variety of supplementary export promotion measures. These industrial complexes played a pivotal role in promoting exports and provided the basis for further growth.

Table 4 - Korean Industrial complex Development
(Unit: numbers/ 1,000)

Category		1960s	1970s	1980s	1990s	After 2000	Total
National complex	Numbers	2	15	10	7	2	36
	Area	25,26	213,95	163,698	24,665	71,509	499,082
General local complex	Numbers	13	18	13	111	106	257
	Area	23,213	24,556	31,285	109,822	111,043	299,919
Urban high-tech complex	Numbers					3	3
	Area					290	290
Agro-indus-trial complex	Numbers			168	126	65	359
	Area			25,968	19,219	11,27	56,457
Free trade zone	Numbers		2			4	6
	Area		1,264			3,005	4,269
Total	Numbers	15	35	191	244	180	661
	Area	48,473	239,77	220,951	153,706	197,117	860,017

Source: J.H.Jang

In the 1970s, Korean government established “free export zones (FEZs)” in Masan and Iksan for foreign firms to produce export products. The FEZs required inter-governmental cooperation, as the Ministry of Construction prepared land and infrastructure while the Ministry of Commerce and Industry was responsible for management. Investors in FEZs were in principle foreign firms. They benefited from tariff exemptions for importing goods to FEZs as well as from tax incentives and low installation costs. The Masan FEZ was regarded as more successful than the Iksan FEZ. The Masan FEZ increased exports, investment and jobs in the Korean economy, and also contributed to improving industry in the vicinity of the FEZ through bringing in advanced technology. On the other hand, the Iksan FEZ fell short of expectations due to underdeveloped supportive industries and inadequate logistics in the vicinity. The location of FEZ’s should take into account the availability of both output and input markets, as well as the infrastructure costs involved.

In the 1980s, concerns over imbalanced development among regions led to some dispersion of industrial complexes. In 1984, seven small sized agro-industrial complexes were designated in 7 provinces, which increased to 168 at the end of 1980s.

Table 5 - Free Trade Zones in Korea

Division	Masan	Iksan	Gunsan	Daebul	Donghae	Yulchon
Date of Designation	1970.1.1	1973.10.8	2000.10.6	2002.11.21	2005.12.12	2005.12.12
Area (1,000)	954	310	1,256	1,156	248	343
Number of settling firms (Foreign Investment firms)	94 (51)	32 (6)	18 (8)	29 (24)	-	-
Export (US$100 Million)	51	1.4	0.8	4	- -	- -
Foreign Investment (US$ Million)	144	5.3	44	38	-	-
Employment (Person)	5,936	1,119	559	3245	-	-
Note	expansion plan by 2014	2010.12.31 Selection Annulled			Planned to develop before 2009	Planned to develop before 2009

Source: Ministry of Industry

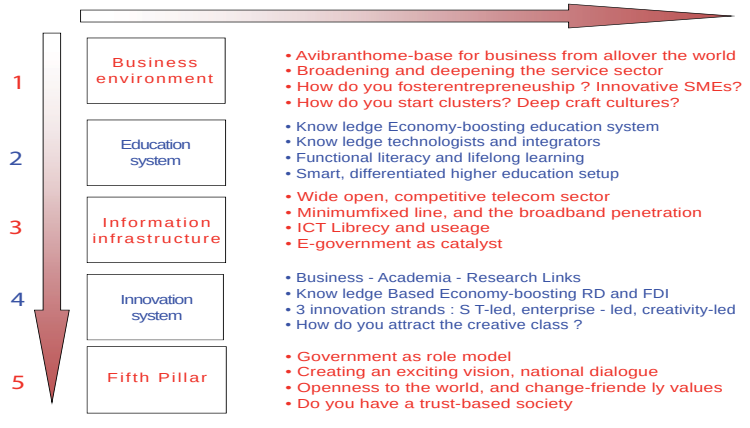
Industrial complexes can play a critical role in development. Lessons from the Korean experience include: (i) a limited number of large industrial complexes are more efficient than numerous small ones; (ii) general efforts to strengthen education and targeted training in science and technology should be pursued in parallel to supporting industrial complexes; (iii) the characteristics of each industrial complex should be decided according to the knowledge base and factor conditions of the industry to be fostered in it; and (iv) it can be useful to develop benchmarks for industrial complexes based on other experiences. (Jang 2009)

3. Lessons of the Korean Experience

Korea's transformation from a poor country to an industrial powerhouse has several lessons for North African countries' efforts to achieve export-led growth. The Korean development strategy emphasized an outward orientation, macroeconomic stability, and large investments in human and physical capital (box 3). The main elements of Korean policies can be looked at in terms of the five pillars to achieve economic competitiveness (figure 6). Government policies have been altered in light of changing development stages and economic conditions. While mistakes have been made, compared with other developing country governments the Korean government's interventions have been flexible and practical[32] The rivalry among economic ministries, especially Economic Planning Board and Ministry of Finance, played a useful check-and-balance role.

Key areas where Korea's experience is important for the North African countries include overall development strategy, marketing services for exporters, the financial sector, human development and labor markets, subsides, industrial clusters, and public sector administration. North African economies can learn from Korea's many successes and its occasional failures.

Figure 6 - 5 pillars for National competitiveness



(Source: Jean F. Richard)

32) Aoki, Kim and Okuno-Fujiwara (1997) noted that the role of the Korean government is not a substitute for the market; rather it has been successful since it has complemented the functioning of the market, in particular, in the earlier years when the markets and institutions were still in a formative stage.

Box II: Korean economic miracle: OECD Economic Surveys

The OECD pointed out three distinctive characteristics of Korean economic development:

An outward-oriented development policy

The expansion of exports was required to overcome a lack of natural resources and the small domestic market. At the early stage, competitiveness was supported by a sharp devaluation and the unification of the complicated multiple exchange rate system. In addition, strong incentives such as tax exemptions and preferential access to credit were provided to exporters. The export promotion policy was generally sector-neutral and did not distinguish between industries, except during Heavy & Chemical Industry Drive.

Macroeconomic stability

Sound fiscal and monetary policies were critical. The high level of government saving financed investments on public infrastructure and policy loans to targeted sectors. The social welfare burden was minimal due to the young age structure.

Investment in physical and human capital

The high level of education in Korea has enabled it to efficiently absorb technology from abroad. The combination of a well-educated labor force and a small stock of physical capital made the return on investment high. Fixed capital formation rose from less than 10 percent of GDP in 1961 to 30 percent in 1980. Strong social capital (trust, stable legal system, ownership, etc) reduced transaction costs.

Mr. Nam Duck-Woo, former Prime Minister, names for the following factors that contributed to Korea's economic development. Economic factors: 1) outward-looking strategy, 2) good use of foreign resources, 3) favorable international environment, 4) education, 5) faith in free enterprise system, 6) activist role of government. Non-economic factors: 1) ethnic and cultural homogeneity and a strong Confucian tradition that places a high value on education, achievement, and loyalty to the nation, 2) National security threat, 3) political leadership. (Nam, 1997)

Development strategy

One important contribution to Korea's success was that policymakers had a vision of what they wanted to achieve and understood how government could contribute to this goal. They realized that poor countries faced market imperfections that could only be overcome through government interventions. In addition to providing critical public goods (competent and transparent administration, an independent judiciary, education, health, infrastructure), government can help overcome coordination failures that inhibit production of new products and encourage activities where firms can benefit from economies of scale and technological spillovers. Thus a key principle of Korean policy has been to provide incentives to firms to enter activities that require a step up in technology and skill content.[33]

By contrast, export production in Tunisia, for example, focuses on providing low-cost goods to serve European markets. While this strategy has been successful in boosting export growth, it makes Tunisia vulnerable to other low-cost producers with entrée to the European market, particularly in Africa and Eastern Europe. Government needs to provide firms the opportunity to learn how to produce somewhat more sophisticated goods to enable continued development. At the same time, ambitious plans to establish biotech or life science industries need to be approached cautiously. The large investments and highly-skilled workers required would sap resources that could be devoted to less-risky projects. The problems that beset Korea's efforts to promote heavy and chemical industries in the 1970's provide a warning of how overly ambitious development programs can result in high levels of debt and wasted resources.

Another key principle of Korean development policies was to encourage competition to ensure that subsidies and protection were used efficiently. Export targets were used to judge firms' performance and to ensure that the goods produced met a market test. The integration of some kind of objective evaluation of firms'

33) http://econ.queensu.ca/pub/faculty/lloyd-ellis/econ239/readings/skorea.pdf

success is essential to ensure the effectiveness of government resources devoted to export promotion. In Egypt, for example, the lack of a market test for the receipt of subsidies contributed to the poor performance of subsidized industries (indicators of industrial policies, including effective rates of protection, subsidies, and barriers to entry, were negatively related to sectoral performance-see chapter 2).

The Korean experience highlights the importance of direction from the highest levels of government and well-coordinated efforts to promote exports. The regular dialogue among trade ministries, trade promotion agencies, and the private sector was used to eliminate bottlenecks to exports rapidly. In the 1960s and 1970s, President Park held a monthly Export Promotion Meeting with all the relevant ministers and private sector representatives to monitor export performance, to resolve problems encountered by exporters, and to recognize top performers. If some projects were found to be lagging behind schedule, the causes of the delay were analyzed and a decision on corrective action was taken, often on the spot. One result was that every official had to be alert to ensure that a project under his responsibility did not become an object of negative attention in the presence of the President. This pressure was no doubt transmitted down the line, and was reflected in quick action to resolve issues where firms needed government assistances (e.g. access to credit, resolution of tax disputes, land use approvals).[34] The government also presented various awards to recognize the achievement of top export performers.

It is unclear whether Korean practices in organizing export promotion activities would fit well into the North African political and social context. Nevertheless, efforts to upgrade exports will require decided attention from high levels of government, and considerable improvement is necessary in the coordination of export promotion activities, for example in Egypt.

34) (source:KDI)

Marketing services for exporters

Firms that wish to enter export markets often face a lack of information on foreign markets and a lack of reputation among foreign purchasers. Government can play an important role in helping exporters to reach foreign markets. The Korean Trade Promotion Corporation was established in 1962 to provide marketing services to exporters, including overseas marketing surveys and business matchmaking. In 1995 its responsibilities were expanded to include investment promotion and support for technological and industrial cooperation projects, and it was renamed the Korea Trade-Investment Promotion Agency (Mah 2010).

Small and medium sized enterprises can face particular difficulties. In the early period of export promotion, many Korean SMEs lacked marketing knowhow, finance, and credibility in foreign markets. Their business volume was too small to justify the investment required to establish a network of salespersons in foreign countries, so they had to rely on foreign agents, brokers, and distribution companies. In 1975, the government introduced the General Trading Company (GTC) system, which was modeled on practices in Japan. The GTCs helped to market SME exports, and supported SMEs in obtaining finance, in bidding on suppliers, and in access to imports of raw materials. By the early 1980s, 10 GTCs accounted for around 42-50 percent of total exports from Korea and 8-16 percent of Korea's imports.

Financial sector policies

The Korean government used the financial system to channel loans to firms selected for public support. Controls on interest rates kept borrowing costs low, and government control of the commercial banks channeled resources to specific, mostly export-oriented, industries (Mah 2010). The government also established separate agencies to finance exporters, including the Korean Export Import Bank, which provides finance to exporters, mostly for capital goods; the Korean Credit Guarantee Fund, which guarantees commercial bank loans to SMEs involved in exporting; and the Korean Export

Insurance Fund, which provides insurance to exporters for losses arising from political and commercial risks.

All in all, this system was designed to ensure that firms attempting to enter more sophisticated sectors had access to finance at low rates, at the cost of impairing the efficiency of credit allocation (as government fiat rather than private sector decisions had a major role in determining who received loans), reducing incentives for financial savings (the system was financed in part by maintaining low interest rates on deposit accounts), and collusion between public sector officials and private firms. However, as the economy developed and became more complex and open to the international economy, the costs of restrictive financial policies rose. The opening to external capital flows in the absence of adequate financial market infrastructure exposed the problems of poorly-supervised banks and over-leveraged firms to foreign investors, leading to the severe financial crisis in 1997 (Cho 2002). After the crisis, the government undertook a thorough restructuring of financial sector to resolve the problems affecting troubled financial institutions, facilitate the recapitalization of banks (both by requiring increased private sector capital and injections of public funds), and improve prudential and regulatory norms. This program improved the profitability of financial institutions and encouraged more prudent lending practices.

North African economies also have used government direction of credit to promote favored industries, albeit with much less success than in Korea, and also face important issues in transitioning to a more open financial system. They have undertaken steps to ease controls on financial sector transactions and address the weaknesses of publically-owned banks (Morocco and Tunisia in the 1990s and Egypt in the past decade). Nevertheless, financial sectors remain small relative to output and subject to high risks, with high levels of nonperforming loans (e.g. in Egypt's state-owned bank), low levels of provisioning, and high interest rates.[35] Korea's experience of financial liberalization in the context of weak institutions leading to a severe crisis should underline the importance of caution in North

35) Based on analysis submitted for the African Development Bank's North African Regional Integration Strategy Paper, 2011.

African efforts to remove constraints on capital account transactions. Korea's success in addressing financial sector weaknesses after the crisis serves as a useful guidepost for continuing efforts in North African countries to improve the soundness and efficiency of the financial sector. It is hoped that North African governments can be encouraged to step up these efforts without the extraordinarily costly experience of a financial crisis.

Human development and labor markets

Supporting human development has been a lynchpin of Korea's policies. The government instituted compulsory primary education in the 1950s and established technical and vocational schools to train engineers and other skilled workers. For example, the Kum-Oh Technical High School (1972) was supplied state-of-the-art equipment imported from Japan, and Japanese teachers with technical know-how were recruited during 1972-76. Korea won the International Vocational Training Competition (the Vocational Olympics) nine times in a row during 1977-1991. The government also introduced a licensing system to certify the credentials of technical personnel and provided tax incentives for private sector job training.[36] This emphasis on training in technical skills contrasts with the North African experience, where a large proportion of college graduates are in social sciences (although in Tunisia the government has allocated considerable resources to technical training) and illiteracy in the general population remains higher than in other countries with similar levels of income (the latest data on the share of the adult population that is literate equals 66 percent in Egypt, 56 percent in Morocco, and 78 percent in Tunisia, while the average for middle-income countries is 83 percent).

Korea's labor legislation was modeled on Japan's. Relatively flexible labor market policies combined with severe restrictions on labor unions (in the context of political tensions on the Korean peninsular) facilitated a very rapid absorption of workers from the agricultural sector into industrial employment in the 1960s and 1970s (Inegami 1998). North African countries may not wish to emulate the Korean

36) Information provided by the Korean Development Institute.

government's policy towards unions. Nevertheless, Korea's success in finding work for the huge number of workers leaving agricultural employment contrasts sharply with North African experience, where rapid increases in the minimum wage (e.g. Morocco), high non-salary wage costs such as pension and health insurance, and constraints on firing led firms to substitute capital for labor, contributing to high structural unemployment rates and distorting production away from countries' comparative advantage in labor-intensive goods.

Subsidies

Subsidies for food and fuels in Egypt and Morocco are a major fiscal burden (in the latter country subsidies cost about 5 percent of GDP), and largely are devoted to urban consumers that are relatively well off. While Korea's subsidies for export production played an important role in development, some subsidies also were costly and poorly targeted. The problems in controlling the costs involved in untargeted subsidies, despite a commitment to rational pricing and regular monitoring, are illustrated by electricity pricing in Korea. In addition, within sectors, the marginal price escalated depending on the consumption level; heavy users are subject to higher marginal price. For example, in household sector, there were 7 levels of escalating price (The marginal price of the 7th level was 13 times higher than that of the 1st level).

Until the last decade, the production of electricity was monopolized by KEPCO, a state-owned enterprise under the Ministry of Industry and Energy. KEPCO introduced a total cost-based pricing mechanism, where different sectors were charged different prices. For example, farmers were charged 41 percent, and general urban customers 123 percent, of average cost. This system distorted domestic production and in an inflationary environment imposed a major fiscal burden, as the time lag between a proposal to increase prices and approval lengthened due to political pressures. Korea's failure to control electricity prices highlights the dangers of such consumption subsidies, even in a relatively wealthy country with strong administration.

Clusters

North African countries have established free trade zones and industrial clusters, in part to centralize the provision of infrastructure and maximize knowledge spillovers among high-tech and export firms (ensuring that exporters face world prices for inputs was another important goal of the free trade zones). Difficulties in the public provision of infrastructure have encouraged the development of public-private partnerships, for example in the establishment and management of technological parks. However, Tunisia lacks the solid legal framework required to implement public-private partnerships successfully. The legal structure introduced by Korea in the 1990s provides one example of an efficient legal framework. It clearly defines what kinds of infrastructure are eligible for PPPs, procurement methods, the process involved, and mechanisms to resolve disputes (box 4). Prerequisites for successful management of PPPs include clear and consistent implementation guidelines, strong government commitment and budgetary authority, and effective coordination between sector PPP and government investment programs.

Public sector administration

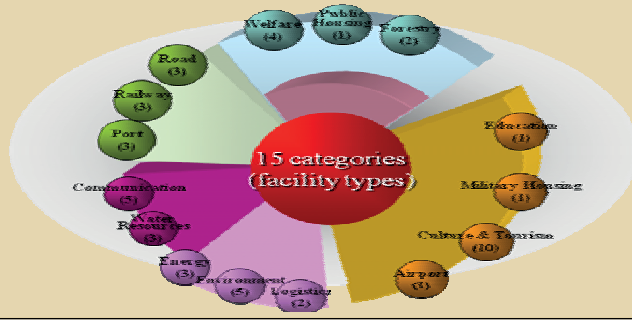
Bureaucratic corruption and inefficiency are major constraints on development in the North African countries. For example, Transparency International's Corruption Perceptions Index places Egypt 111th, Morocco 87th and Tunisia 65th out of 180 countries. There is an unfortunate tendency towards accepting poor governance and mismanagement as endemic to a stage of development where limited government resources make it difficult to pay adequate salaries to attract high-quality personnel. However, Korea provides an example of how the careful monitoring of officials and reliance on information technology can limit corruption and improve the efficiency of government operations. One approach was to require regular reports on the net worth of political leaders and high-ranking government officials. Increases in net worth that do not correspond to an official's salary and investment income can then be investigated. While officials can file false reports, this process can serve as a deterrent to corruption.

Box IV: Public-Private Partnership (PPP) in Korea

In 1994 Korea introduced a legal framework for PPPs, "The Act on Promotion of Private Capital into Social Overhead Capital Investment". It clearly defines eligible infrastructure types, procurement methods, process, and conflict resolution mechanism, etc. The types and structure of PPP arrangements are as follows:

	BTO	BTL	Other
Investment Recovery	User fees Construction subsidy, MRG	Lease payment (Fixed Revenue)	**BOT, BOO**
Project risk	Demand risk on concessionaire	Little demand risk on concessionaire	
Return	High risk, high return	Low risk, low return	
Eligibility	Both solicited and unsolicited projects (Roads, seaports, & railway projects, etc)	Solicited projects only (School, dormitory, military housing, etc	

A broad range of infrastructure facilities are eligible for PPPs:



The use of information technology in tax assessment and collection, customs administration and procurement can limit opportunities for corrupt practices by reducing personal contacts between suppliers and officials, and improving the transparency of rules and their application. Information technology also can reduce the time required by government and the private sector to process transactions, improve revenue generation and operational control, and strengthen communication within the public sector and between the public and private sectors. One successful example was the introduction of e-procurement in Korea in the late 1990s. The former procurement system imposed time consuming procedures on both government

officials and private suppliers, led to the provision of inconsistent information from different agencies, and resulted in rigged bidding practices. The new system has served as a focal point for more than 30 procurement related agencies to obtain information and gain access to standardized products, documents, and expedited payments. Online access has allowed suppliers to retrieve all the relevant information on the bidding process, including comparative assessment across agencies. The wide availability of information and the increased number of participating bidders has most likely mitigated the risks of collusion and bid rigging.[37]

37) Source: http://siteresources.worldbank.org/INTPEAM/Resources/

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